



# THE CULTIVATOR.

NEW

"TO IMPROVE THE SOIL AND THE MIND."

SERIES.

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## THE CULTIVATOR

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### LETTERS FROM MR. HORSFORD.—No. VIII.

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We have received from our German correspondent, Mr. HORSFORD, a package of letters on various subjects, all of which we shall lay before our readers in due time. The following one, in reference to an institution for agricultural instruction, will be read with interest by all—especially those whose minds have been directed to the establishment of institutions for that purpose in this country. In our next we shall give Mr. HORSFORD'S description of the celebrated Fellenberg school, at Hofwyl, in Switzerland.

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### AGRICULTURAL INSTITUTE OF WURTEMBERG.

Giessen, Nov. 30, 1845.

MR. TUCKER—I promised in my last to give some account of the Royal Agricultural Institute of Wurtemberg, near Stuttgart.

The estate and castle bearing the name of Hohenheim, were appropriated to their present use in 1817. They had previously been in the possession of noted families, and at one time, that of the Grand Duke Charles. Royalty had planned and executed with no small measure of taste, the division of the grounds, and the Institution of Agriculture commenced. Few estates could have been selected combining so many advantages for the purposes to which this was destined. Seven hundred and eighty-eight English acres are spread irregularly over a broad mound, and through a valley upon one side, the whole length of which is traversed by a stream sufficiently large for milling purposes. Near the top of the mound stands the castle and connected buildings, which, with the court-yards, have a length of sixteen hundred, and a depth of five hundred and forty feet.

The various apartments of this immense establishment furnish abundant room for the residence of the faculty, pupils and laborers; also rooms for instruction, for the mineralogical, zoological, model, and other collections—the housing of stock and grains, fruit, and other farm produce—for the carrying forward the different kinds of manufacture—wagons, plows, machines, &c., with the sugar, alcohol, starch, and vinegar production. Its distance from Stuttgart is about six miles; sufficiently near to enjoy all the advantages of a ready

market, and command at the same time a prompt supply of the wants of the institution.

The whole farm is cut into several lesser divisions, each bearing another name. These are again subdivided and numbered. There being no hedges, the limits are furrows between monuments at the opposite extremes. The lots given to experiments, contain each precisely one fourth of an acre, (Wurtemberg;) and every fact relating to the development of each crop, especially the amount of seed, manure, and labor bestowed, and each return, are noted. Besides these fields, upon which almost every variety of crop is grown,—if not in the same year, in successive years,—nurseries of fruit and exotic trees, orchards, flower and kitchen gardens, pasture lands, pleasure grounds, and in general, all the usual, and even unusual features of the best farms to be met with.

In the cultivation and improvements, the implements esteemed in the institution the best, are employed. The stock consists of sheep, about 1,100; cattle, mostly cows, nearly 100; breeding mares 10; besides a number of working cattle and horses. The sheep are Merino and Saxon—looking finely. They are under the control of one principal shepherd and several assistants, each of whom has one or two dogs. The flocks are pastured in summer, but housed regularly at night through the whole year. Each sheep is numbered by a system of ear-marking of great simplicity, and its fleece is every year weighed. The whole flock, at intervals of a few weeks, is weighed in a Fairbank's scales.

The cows are of the Seminal breed from Switzerland. They are said to have certain excellencies; though their appearance in the stall was altogether indifferent. They are stalled through the year. I have already mentioned, if I remember right, that the herd of cattle is considered as a manure manufactory, and in this light subserving as important, if not indeed a more important end, than in their daily supplies of milk. I find it difficult to appreciate this statement made to me, though it is obvious that every source of manure is gleaned with a care of which, in the generally (as yet) rich lands of the new world, we know nothing.

The cow stable is a hall of more than a hundred feet in length, and at least twenty feet high. The cattle stand facing each other from opposite sides of a cut-stone platform, about two and a half feet in elevation. They are chained to a manger immediately attached to the platform. Their fodder is spread before them, and by no possibility comes to the floor of paved stone. Several cows, steers, and yearling heifers, were fed each apart from all the others, the fodder being weighed before, and the excess gathered up after eating, also weighed. These cattle are severally weighed at certain intervals, and in this manner the value of different kinds of fodder is ascertained. The amount of milk from each cow is measured once a month. Indeed the whole system is arranged with a great degree of scientific purpose.

The breeding mares are good selections, I understand from the common stock and English crosses. The foals, through the generosity of the present king, are derived partly from thorough Arabian stallions, and partly from valuable native stock. The stalls for the dams, are

about fifteen feet square, in which the occupants remain the early part of the day and night, untied. The colts and fillies occupy larger pens where several are together.

All the results of the different schemes of experimenting, in growing roots, grains, fruits, exotic woods, in the treatment of stock, and in the determination of the value of fodder, are published in a weekly agricultural paper, edited by one of the faculty.

Among the productions of the botanical gardens, experiment fields, and orchards, every kind of useful plant suited to the latitude are to be found. Their seeds and fruit are most carefully, and with great attention to purity, preserved for sale. I noticed in the immense apartment devoted to keeping these in good order, and dry, seventy-two varieties of potatoes,—above fifty kinds of wheat—a great variety of oats, barley, rye, buckwheat, grass, clover, beets, parsnips, cabbages, &c.,—more than a hundred and fifty kinds of apples, two hundred kinds of pears, and other fruits in proportion. Three hundred kinds of forest wood are grown in the exotic nursery, and more than a thousand different plants flourish in the botanical garden. The scions, roots, and seeds from these sources are sold throughout the kingdom, and the income therefrom is not inconsiderable.

The collections for study and illustration, embrace soils and manures—perhaps a hundred varieties, chiefly from different parts of Wurtemberg—botanical specimens, plants, seeds, and woods,—vastly extensive mineralogical, geological, palaeontological collections, especially rich in every thing illustrating those departments of natural history, from all parts of the kingdom—zoological, embracing all the species existing in, or visiting Wurtemberg—anatomical, of cattle, horses, sheep, swine, dogs, cats, and fowls—of teeth for determining age—of bones likely to become diseased—of hoofs with all models of shoes for sound and unsound limbs; of models of agricultural implements as a class, and agricultural architecture of which there are about seven hundred specimens; and many other things not to be grouped or enumerated without occupying too much space.

The mention of these can give no idea of the order, compactness, and adaptation to their end, which these collections possess. For example, the history of the silk work is shown with the aid of glass frames, containing the most elaborately prepared anatomical and physiological illustrations one can conceive. Much of it would require a microscope to see, but it is there. In the botanical collections, upon one side of the room stands a book-case. Upon taking a volume from the shelf, it proves to be a wooden box, overlaid with moss, so arranged as at a little distance to resemble an elegantly fancy-bound book. Within, on one side is the plant, with its leaves and wood, with bark; on the other side its fruit, and cross and longitudinal sections of the wood. In the depression of the back, a little sealed cup of pollen, and a sheet of history of the plant. The library was the gift of a prince—at the same time a monument of German patience, science, and patronage.

In addition to these is a collection of apparatus in natural philosophy and chemistry. The Technical laboratory contains the most improved apparatus for the manufacture of starch and alcohol from potatoes, sugar from beets, vinegar, beer, cider, and silk. It also includes the work-shops, in which plows, wagons, and every variety of farm instruments are made, together with the duplicates of the model collection.

The Faculty consists of a

Director, who lectures upon the productions of the animal kingdom, and, the general plan of agriculture pursued at Hohenheim;

Professor of Agriculture;

Prof. of Forest Science, who supervises the forest lands belonging to the estates. There is in this department an Assistant;

Prof. of Mathematics and Physics;

Prof. of Chemistry and Natural History;

Prof. of Technology and Instructor in the Technical Laboratory;

Teacher of Farriery;

Teacher of Field Labor, plowing, hoeing, spading &c;

Teacher of Nursery and Orchard Culture;

Teacher of Machine Drawing;

Assistant to the Cashier, book-keeper, &c.;

Gardener and Smiths.

The course of instruction is upon the plan of a German university. The professor gives lectures which are attended as largely or as indifferently as the students please. Having decided at the commencement of a term, however, which lectures they will attend, these they are required to hear—and at the conclusion of the course, to sustain a rigid examination upon them, and the general subject upon which they treat, in order to secure their diploma.

As there are ninety-four lectures, weekly, in winter, and eighty-five in summer, it is obvious that less than a three years' course would be imperfect. Candidates, as the students are called, are admitted for less periods—for a term, I think. Their qualifications at universities, before entering, will naturally render some of the courses unnecessary. Most of them have completed what would be considered a college course, with us, and many have completed an university course, previous to entering. They must be eighteen years of age. The practical illustrations of the farm and its appendages, are witnessed in the course of the year. Manual labor of no description is required, though instruction in the different kinds of handiwork, is practically received.

The apparatus for making sugar from beets is put in operation once a year, at a fearful expense, to illustrate the art of winning this article of commerce. The starch manufacture, alcohol production and distillation, and vinegar manufacture, upon the principles of modern organic chemistry, are all conducted in their absolutely practical modes, that the candidates may be prepared as agents or as directors of large estates, or as farmers themselves to carry them forward with profit.

Tuition is 300 florins, or \$120, yearly, for foreigners; for Wurtembergers, 100 fl., or \$40. In addition to this is a board-bill, amounting to about 18 cents daily, in some instances less.

The above remarks apply almost exclusively to the theoretical school at Hohenheim. Besides this there is a practical—a work school, designed to make skillful day-laborers, rather than theoretically grounded farmers. The pupils must be not less than seventeen years of age. Two hours of instruction daily, in the winter, and one in summer, are allowed to them, independent of their communication with the director of the work. The following is the course of instruction in this school:—

1st term—Cattle-breeding, and cheese-manufacture.	
2d—Sheep breeding and horse-breeding, with attention to wool.	
3d—Culture of soils.	
4th—General agriculture, swine-breeding, and farm book-keeping.	
5th—Special culture of plants.	
6th—Fruit, grafting, meadows, bees.	
The entire tuition is 100 fl.,—60 for the first year, 40 for the second, and nothing for the third—\$40 in all.	
The annual expenses of the institution for the year 1843, exclusive of appropriations for extra erections, or changes of much magnitude which have been provided for by the government in all instances, thus far—are	
Annual salaries,.....	fl.7,030
Library, publication, and expenses of scientific excursions,.....	850
Particular instruction in models, soils, plowing, sowing, &c.,.....	600
Appropriations to the several departments,	725
Great variety of stationary and sundries, ..	2,260
Director and assistants,.....	5,365
	fl.16,830
Expense of the lower school, .....	1,912
Total,.....	fl.18,742
Or,.....	\$7496.80



With the exception of the extraordinary expenditure for new fixtures, or renewals, or alterations, the produce of the farm and the income from the academic department equal the expenses of the Institution and the entire management of the estate.

In explanation of the item "scientific excursions," it should be stated that tours for study and observation, of greater or less length, are made by corps of the classes in the vacations between the terms. To aid them a sheet has been published at Hohenheim, including a notice of every feature in agriculture, manufactures, collections in natural history, localities of rocks and minerals, breweries, vintages, mills, &c., &c. The value of the sheet can easily be conceived.

This system of excursions is a part, perhaps I may say, of continental or European education. Apprentices, even, are required by law to travel a year before they can commence business in Germany. The students of the Polytechnic school of Paris, have travelled over repeatedly, I have been informed, the French kingdom.

An early observer of mankind describes his hero as one who "had seen much of cities and of men." In France, opportunities for observation seem to have lost none of their regard, to which according to this writer of antiquity they are entitled, among those who control more or less the education of Europe.

Before me lies a book of 330 pages octavo, illustrated by a series of large plates, some twenty in number, embracing a detailed description of Hohenheim, its buildings and grounds, and its system of instruction, in theory and practice, with a record of almost every item of information to be desired concerning the institution. Beside it lie a pile of statutes, catalogues, farm plans, inventories, lecture schemes, &c., &c., all of which I could wish for the sake of those interested in grounding agricultural institutions in America, were translated into English.

From these, and what I have observed during two days, I have drawn the imperfect account as given above. I can but hope, general as it is, that it may be of service.

I should not perhaps neglect mentioning that my notes in many particulars record the superior excellence of American implements and expedients when compared with the best I have seen here. An institution enjoying royal patronage, and furnished at the outset with a royal estate and edifices, should in the course of twenty-seven years, have evolved a system of agricultural education possessing many excellencies. This was the least that could have been expected. Notwithstanding all the effort bestowed upon improvement, several features impressed me as imperfect; and yet it is possible that my associations in the new world disqualify me in a measure for forming an opinion as to what would be practically the best for Germany. I will only add that the distribution of labor among the faculty, seemed to me to be susceptible of modification for the better. The Professor of Chemistry, has botany, mineralogy, geology, and zoology, besides the duties of a practicing physician, (!) entrusted to him. Now if there be any one science pre-eminently at the foundation of rational agriculture, it is chemistry; and in view of this, that the professor of this department should have his energies divided upon such a variety of different and distantly associated (in some respects certainly) branches of science, and his efficiency lessened, naturally, in proportion, impressed me as a great oversight. In the department of chemistry, not a single step towards settling the weighty problems for the farmer is being taken. I say this with undiminished regard for the rare combination of industry, talent, and perseverance presiding over the chair of Chemistry and Natural History at Hohenheim. It is impossible that he should do more than he does.

In general, in the French and German institutions, one of the schemes of professional life, is to furnish facilities for scientific advancement. The world is thus benefitted, and though the sphere of instruction may thereby be more limited, the knowledge imparted will be proportionally more profound. This feature, to

this moment characterizing scarcely an institution in America, is not kept in view in the apportioning of duty among the departments of instruction at Hohenheim. Were one to ask what has roused universal attention in the last twenty years to the subject of directing all processes of art by science, and in the last eight years of improving agriculture by drawing aid from the same source, the answer would come from a few professional chairs, where men of capacity, industry, and energy, have been provided with conveniences for prosecuting scientific research.

Truly yours, E. N. HORSFORD.

#### CULTURE OF CARROTS AND ONIONS.

.....

MR. EDITOR—Having had good success in raising carrots, onions, &c., I have had a desire to make my mode of raising such vegetables public, as it differs in some respects from the modes usually practiced in this country. But when I considered I was not well skilled in writing articles for publication, I was led to hesitate, until I reflected that language—the vehicle by which our ideas are communicated—may be compared to the carriage which conveys the produce of the farmer to market; and when I remembered that it matters little whether the carriage is constructed with two, three, four, or even five wheels; so long as the produce is easily, expeditiously, and safely conveyed, it gave me some more confidence. And then again, I received additional encouragement by some remarks of a correspondent of the Albany Cultivator, who, after speaking of the reading of agricultural papers, says:—"This reading gives an opportunity of becoming acquainted with the practical experience of farmers. It is much to be desired that more of this class of farmers could be induced to give their views. There is too frequently a reluctance to writing. This reluctance should be overcome. It is not expected that plain farmers should always frame sentences in the style of literary writers, nor is this necessary—give us the facts in an intelligible manner." And so I am encouraged to proceed. And to commence, I will state the amount of carrots and onions I obtained, and then some of the means used to obtain so large crops. But before proceeding, I will remark that I have no doubt that in several respects my mode of management may be improved upon.

Of carrots, I had at the rate of twelve hundred nine and a half bushels to the acre, large measure, and of onions, six hundred and thirty bushels.

The land on which these crops grew—being of a full middling quality as to richness—was plowed early in the spring, at a time when the ground was in a sufficiently dry\* state to pulverize. It was then harrowed several times over. Then plowed a second time in such a manner as to have no treading of the team upon it. A row of boards to stand upon while sowing the seed, was laid down on one side of the ground about to be sowed. With a common hay rake, six or seven feet in breadth was soon made sufficiently level to sow. A line fastened to two stakes was stretched to mark the place where the first row was to be sowed. Then with a common garden hoe, a place near one inch deep was made for the seeds. The onion seeds were then sowed very evenly and expeditiously with a contrivance which I will hereafter describe, and covered with the hoe. Then the line was moved fifteen inches to mark out the place for the second row. The boards were then moved over the row that had been sowed, so that the second row could be dug out, sowed and covered as was the first. The line was then moved to mark the third row, and the boards were also moved over the second one, which was already sowed. In this manner I proceeded until the whole was finished, and the ground presented a beautiful level and mellow appearance, as if a light roller had passed over it, without having the appear-

\* As there is often too much moisture in land to plow it early in the spring; and as carrots, onions, and parsneps, need to be sowed early, it would doubtless, in many cases, be well to ridge the land up in the fall.

ance of being trodden down, as is often the case where men walk upon the ground. The carrots were sowed in much the same manner as the onions, with the exception that eighteen inches space was allowed for the rows, instead of fifteen. A small quantity of plaster was sowed with the seeds.

When the carrots and onions were up sufficiently high to hoe, I commenced at one end of the rows, and hoed in as far as I could conveniently reach. Two pieces of board, each near three feet long, and ten inches wide, were placed in two of the rows I had commenced hoeing, and which I wished to finish. I then stepped on to one of the pieces of board, and hoed on as far as I could conveniently reach; then stepped on to the other board in the adjoining row, and hoed an equal distance in that row. Then, with my hoe placed against a nail fastened near one end of the board, I moved the board I had just left, about two feet in advance; then stepped on to it, and moved the other board in like manner. Then hoed two feet ahead, moved my boards again, and so proceeded on to the ends of the rows. This process, although not quite as expeditious as without boards, not only left the ground in a very mellow state, but many of the fine lumps were broken which by the common method of hoeing would not have been. The land presented, after this process, the appearance of having had a roller passed over it, and I think it was better fitted to withstand a drouth than it would have been if left in a rough state.

The onions were hoed three times; and at each time when the ground was in a sufficiently dry state to pulverize. The carrots were hoed in much the same manner as the onions, and in addition the ground was loosened up between the rows with a dung fork just before the tops became so large as to prevent such an operation. The earth was not heaved up with the fork, as is commonly done in preparing beds for sowing, but it was barely loosened by running down the fork and giving it a pry. Some of your readers will perhaps think I am very particular in describing my mode of procedure, and to such, if any there are, I would say, it was by attending to the small matters as well as the large, that, under Providence, I was enabled to realize so large a result.

The implement I have referred to for sowing the seeds, I will now endeavor to describe. The bottom of an old fashioned coffee pot was knocked out.\* The pyramidal shaped top was soldered on fast. A hole near one third of an inch in diameter was made in the extreme end of the top for the seeds to run through. The whole was then inverted, and a handle near two feet long was nailed to one side to hold it by when in use. The seeds about to be sowed were thoroughly mixed with sand that was dry and had been sifted to free it from lumps, small sticks, &c. On account of its simplicity and cheapness; on account of the even and sure manner in which it distributes the seeds, and on account of its being well adapted for sowing short rows as well as long ones, it is well calculated for extensive use.

I will also describe a simple, cheap and useful instrument I used to dig my carrots and parsneps. It was made out of a piece of large sized wagon tire about fifteen inches in length. One end was sharpened, and the other slit down near three and a half inches. The part on one side the slit was left straight to be inserted in the handle. The part on the other side was turned down horizontally, to place the foot upon when the instrument was in use. With one of these implements, a man will dig, in a given time, one quarter more of parsneps or carrots than he could with a common spade.

Sandlake, Dec., 1845.

S. S. G.

#### DESCRIPTION OF A MOUNTED STONE-BOAT.

.....

TAKE a stick 3 by 4 inches, and 4 feet long, on which place a pair of strong wheels, 18 inches in diameter. Take another axle, 4 by six inches, 6 feet

long, into which frame a tongue suitable for oxen or horses, as the case may be, then borrow the forward wheels from your lumber wagon, and place them on the long axle, and you have the "movements" finished.

Then take stone-boat plank of the usual form and bolt the hind ends fast to the *under side* of the short axle; pin a piece of scantling across the forward ends, into the center of which drive a strong iron staple and connect it by the swivel to the under side of the long axle. The reason why the forward axletree is longest, is, to give room for the wheels in turning. The above combines in a great measure the advantages of a cart and stone-boat, viz., ease of draft and facility of loading.

HIGHLANDER.

Nov. 8, 1845.

#### EXPERIMENTS WITH NEW KINDS OF WHEAT.

.....

EDITOR OF THE CULTIVATOR—Perhaps it may not be uninteresting to you to hear a few particulars regarding some experiments which I have made in growing certain kinds of wheat, that have recently attracted so much notice in Europe, and more particularly in England. Among the most celebrated growers of wheat is Col. Le Couteur. This gentleman has particularly recommended three kinds, called by him the Bellevue Talavera, the Jersey Dantzic, and the Downy White. Col. Le Couteur was kind enough to send to me in a letter, a small quantity of each of these sorts of wheat before I left England. I obtained also, in London, a small quantity of the Victoria Wheat, which Sir Robert Ker Porter introduced from Caraccas, in South America, and which was favorably spoken of by Humboldt. I likewise procured some of the Whittington White Wheat, brought originally from Switzerland. All these I sowed in September, 1843. The following winter destroyed all the plants of the Jersey Dantzic, and nearly all those of the Bellevue Talavera, and the Downy White. Those however, of the Victoria and Whittington wheats survived the frosts of that inclement season. At harvest a few ears only of the Bellevue Talavera and the Downy White were obtained. The crop of the Victoria and Whittington wheats was pretty good, but each crop was rather late in coming to maturity, and each was therefore affected with the rust, and the grain was shrunk.

The seed of each sort thus obtained was sown in September, 1844. The wheat plants stood the winter very well; the Bellevue Talavera not appearing on this occasion to suffer to any perceptible extent. At the harvest of the present year, the crop of Victoria wheat was very good. The Whittington was not so good. The Bellevue Talavera yielded remarkably well; for although a very small quantity of seed was scattered thinly over a space three yards by four, measuring twelve superficial square yards, yet the product amounted to about three quarts, which was at the rate of nearly thirty-eight bushels per acre. I may add that no manure was applied to the land, but it had been merely fallowed after a crop of oats; and on each side of it, Mediterranean wheat grew, which might yield a product not exceeding twenty bushels per acre. The berry of the Bellevue Talavera wheat is white and large, with a thin skin; its straw is sufficiently strong and not too long; and it does not shell out when allowed to remain uncut after it is fully ripe; but in addition to these good qualities, it has the desirable property of ripening very early,—more early, indeed, than any other description of wheat grown in this part of the United States. It is consequently less liable to be affected with rust. The Bellevue Talavera wheat, therefore, is probably destined, when perfectly acclimated, to become a valuable acquisition to the farmer of this country. Moreover, according to Col. Le Couteur's experience, the Bellevue Talavera wheat will, *ceteris paribus*, yield much more per acre than the best kinds of English wheat. Hence it will be obvious that it is of primary importance for farmers to make a judicious selection in regard to the sorts of wheat which they

\* By the by, I do not use coffee, as I deem it—unless in sickness—an unnecessary, and to many, hurtful drink.



cultivate, for if Col. Le Couteur's statement is to be reeled upon, and there is not the remotest cause to doubt his veracity, some sorts of wheat will, simply because they are naturally more productive, yield such an additional amount of produce as will more than remunerate the farmer for the labor of cultivation.

H. R.

Varick, Seneca county, N. Y., Nov., 1845.

#### "LIKE PRODUCES LIKE."

.....

THE writer has read your article on this subject, and so far as it regards plants in a state of nature he has no doubt of its correctness.

The humus produced by the decomposition of the trees and leaves of the forest, serves as a manure for the production of future forests—or rather as an absorber of ammonia for the benefit of future forests; and the decomposition of grasses, operates in the same way for the production of future crops of grass.

There is no doubt that wheat if sown on a suitable soil, and left unmolested, would reproduce itself for ages; but my belief is it would degenerate, and thus finally, the grain would not be larger or heavier than that of chess.

Wheat is found as a grass in Sicily, growing in the highways by the sides of fences; but it is a stunted plant, and its seeds are said not to be larger than those of timothy.

Cultivation improves most plants, (the apple, the peach, and the plum, for example,) and roots and grain among the rest.

The grains require animal manures to bring them to perfection, and they flourish only about the residences of men, where they receive the ammonia produced by the urine of men and of beasts. Wheat, with no other manure than the decomposition of its stem, its leaves, and its grain, would flourish, and bring forth fruit, probably to the amount of a few bushels to the acre; but this would not answer the purposes of the cultivator. He must have a large crop of fine wheat, containing a large quantity of gluten. This he cannot obtain on the best of soils, without imparting to the plant at least double the quantity of manure it would obtain from the atmosphere and from the decomposition of the plant of the previous year, the fruit of grain excepted. What then does he do?

By fallowing he destroys all vegetation whatever, turns up the soil and exposes it to the atmosphere, loosens it and renders it porous, so as to become as it were a sponge, to absorb the carbonic acid and ammonia from water and the atmosphere, and in addition to this he buries within the soil animal matter which contains ammonia in a fixed state, and which by the application of water becomes soluble as the plant requires it, and he keeps it there by a top dressing of gypsum—and which is constantly absorbing more from rain water.

This is the state of the land when it receives the grain. The plant has the benefit of the ammonia before it puts forth its leaves, and by its roots it derives nutriment from the same source until it attains maturity. By this process the cultivator, instead of obtaining a few grains from one, obtains an hundred fold, in quality equal, and often superior to that sown; and here I apprehend is the great benefit derived from cultivation, and the application of animal and other manures. The cultivator carries off the grain, and so far robs the soil, and even if he should restore all the rest of the plant, he must make up the deficiency by other manures.

Still it is not to be denied, that the straw of wheat, if applied lightly as a top dressing, would prove a valuable manure for wheat. That straw contains potash, soda, lime, magnesia, alumina, silica, sulphuric acid, phosphoric acid, and chlorine, all of which are necessary for the production of the new plant, and it would be absurd to contend that it would not be benefited by its application.

So far from doing this, the writer knows it would prove a valuable auxiliary—and with the aid of a barrel of

manure he is now preparing, which will cost not to exceed \$2, he confidently believes he can manure an acre of wheat land sufficiently to produce a full crop of first rate wheat, and he will not say that by the same manure, he cannot at all times, and every year, produce good crops of wheat on the same land. If so, the discovery may produce a new era in the agriculture of the United States. The experiments of the next season will test the correctness of his theory.

A FARMER OF TOMPKINS COUNTY.

P. S. His new manure will prove equally valuable for other grain crops, grass, and roots, and he believes also for cane, cotton, and tobacco.

#### EXPERIMENT WITH GUANO.

.....

MR. EDITOR—Let me occupy a small space in your paper to clear up the difficulties in which my article upon the effect of guano, in your November number, seems to be involved. Your correspondent, J. B. C., says that it is not sufficiently definite, and he requests the modus operandi of my experiments. I must confess to the truth of some of his remarks, though I will not allow that my case, and that of the old lady giving a guide to good indigo, are altogether alike, for he admits that my communication furnished him a hint, when surely, the old lady's recipe contained not even that.

I did not keep memorandums of the cases, as I had no intention of communicating them for publication, and certainly should not have felt authorized in doing it, had not the effect been so astonishing. Upon one experiment I should hardly think of basing an opinion, and neither upon two ought much reliance to be placed. A variety of experiments, under different circumstances, can only give a sure test of our applications; still I think my experiments are entitled to some consideration, taking the fact into account that other vines and rose bushes situated exactly similar, presented so striking a contrast.

Of guano, I took five pounds, which was mixed with four paris earth, making, say twenty-five pounds. In this state it remained one day, or twenty-four hours, when I dug in about the rose, which is in a half gallon pot, perhaps four or five table spoonsful. I afterwards, in three or four weeks, applied a tea spoonful or so of pure guano, being careful that it did not come in contact with the plant, which has a stem half an inch through, and is two feet high.

In the case of the vine, I dug about the roots to the depth of a foot, into which I scattered the mixture, covering up with ordinary earth. The main stem of this vine, is two inches and a half through, and spreads its branches each way fifteen or twenty feet.

These applications were made the latter part of April or fore part of May. I might add that during the warm, dry weather in summer, I threw about this vine a good many pails of water, (I would like to say how many, but unfortunately can't.) This was done more for the purpose of distributing the guano than with any other object, though I am under the impression that such waterings are very good at any time, but more especially if there has been a lack of rain, and I wanted to see what effect these means together would have. How far each contributed to produce the result mentioned, I leave to J. B. C., and others interested, to determine. I shall, however, follow up my experiments another year, being quite convinced that guano is a most capital fertilizer, and well adapted to the uses of a garden or green-house.

I hope the above explanation will satisfy your "definite" loving correspondent, and enable him to get at the substance of the "hint."

A. T.

Brooklyn, Dec. 25, 1845.

IMPORTATION OF STOCK.—The ship Independence lately arrived at Boston, brought four cows and seven sheep consigned to Hon. DANIEL WEBSTER, and these have been sent to Marshfield.

## PRESERVATION OF WOODLANDS, &amp;c.

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MR. TUCKER—There are two existing causes from which we of the northern and eastern states have reason at some future time, to anticipate a scarcity of timber for fuel, fencing, and building purposes. One of these, arises from the increasing demand which is constantly arising from a variety of causes, and sweeping over our groves and mountains, until they, the latter at least, exhibit appearances but little more inviting than were those of Sampson when shorn of his beautiful locks, for like his, their strength and glory has departed, not to be sure, by the wily hand of a coquettish Delilah, but through the everlasting influence of a *ready money* getting propensity. What a strange doctrine that, which appears so universally prevalent, that whatever can be turned to cash from the farm, must be so turned, without even risking an inquiry whether the farm is to be impoverished by the transaction or not; and what is a farm worth without a timber lot? Any one who has any experience in farm management, can solve that question from continued experience. And yet, so very regardless are very many of the wants of their successors, with regard to fuel and timber, that they will avail themselves of every opportunity to sell their best trees "in quantities to suit purchasers," "for cash," at any time and at all times, though by so doing they may diminish the real value of their farms at an irrecoverable rate.

But there is another cause why we feel warranted in apprehending a deficiency in wood lots. This is implied in the known fact that vast amounts of woodlands are now subject to a double tax. They must not only furnish fuel for the fire and timber for the farm, and occasionally some of both for market, but they must also submit to heavy drafts for pasturage, so that no new shoots are permitted to start and take the place of trees removed, and in consequence, grass comes in, and the remaining timber grows sickly, and in a short time begins to die, and then, the sooner the land is cleared the better.

Now we hold that woodlands are profitable investments, and will be as long as men build houses or fences, or so long as the increasing numbers of factories or steam engines are throwing off their heavy or continual columns of smoke in every direction. And, if profitable, then they are worthy of protection and economical management.

By protection we mean keeping out of them all kinds of stock, whether quadruped or biped, which is calculated to keep down the growth of young stuff, and this will embrace cattle, sheep, and horses. By bipeds we mean certain vagrant animals, who, though they move on two feet instead of four, are nevertheless endowed with sensibilities but little above the brute creation, and seek no better livelihood than rambling over their neighbor's premises, and falling, pell-mell upon every chestnut and walnut tree that comes within their reach, and disfiguring and frequently ruining their future growth by their lordly prowlings. The last class of these animals, as thousands will attest, are the most annoying, for while good fences will secure horses, hogs, sheep, and cattle, neither good fences, good laws, good morals, or good breeding, offer any impediment to them.

We have adopted, for a few years past, a plan of managing woodlands which so far commends itself so favorably, that we are not only disposed to continue it, but present it to the notice and consideration of others.

In the first place, we do not design to have a hoof enter upon the premises for any purpose except to draw off the fuel and timber for the current year. We have done so since 1842, and the consequence is, a new growth has shot up most luxuriantly, where there was none before, and which promises in a few years to form a beautiful wood-lot.

In the next place, we cut clean as we go, a practice which possesses the following recommendations, viz: Commence on the part of the wood-lot most distant from your dwelling, and clear what you need for your year's supply. Then you have occasion for your path

or paths in that part of your premises no further, and they with the rest of the land will grow a new supply of timber, and thereby you will save the use of land. Next year commence on the further side again, and continue doing so. Then, you will yearly be bringing your work nearer home, and the quantity of land occupied by paths will be diminishing every year, until you get over the whole ground. You will also get an even growth of timber by so doing, an attainment that can never be reached by the old process of taking a tree here and another there, to each of which you must have a (perhaps new) path, and in the fall of which you will be almost certain to break down a quantity of young and thrifty timber, which will amount almost to clearing.

Where any one goes into woodlands and selects trees for chopping, he leaves such as remain—and which are perhaps poorly fitted to stand the merciless blasts of winter, more exposed to pelting winds and the severe influence of frost, which are often fatal in their effects upon tall and thrifty trees left under their influence, while the young growth starting up under circumstances to meet such exposure, becomes its own protector, by preparing for itself trunk and branches befitting the circumstances attending it.

Now, I am very well aware, that after all that has been or can be said in favor of this mode of proceeding, that many will be ready to raise their hands in wonder and cry loudly against it. I know very well that it looks bad to see a corner cleared out of a man's wood-lot. It is a sight I would never wish to have sadden my eyes on any other consideration than that of seeing it grow up again. Then I know, the plea will come up, that it will take the timber that has not yet vegetated, so long to grow to a size fit for the axe. Not so long, by the by, where this mode of operation is pursued, taking value into consideration, as when the old method is pursued, for the same number of cords of the same kinds of wood grown after our system, will be worth more than that grown in the half cleared woodlands of the old system, for it will be of a firmer, more compact grain, and of course possess a greater weight. But I have said enough. Those disposed will try the experiment for themselves, and to those who are not, additional words are useless.

Yours truly,

W. BACON.

Richmond, Mass., Nov. 18, 1845.

## POSTS UPHEAVED BY THE FROST.

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WE observe post fence in certain spots to rise up, annually more and more, until after a few years, swine can creep under; and it often leans so much that props become necessary to prevent it from falling. Now what is the cause of this upheaval?

On examining, we find that these spots are wetter, and the ground more spongy than the other parts of the line. Well, what then? Why, in severely cold weather, the wet surface freezes, fastening round the post a solid cake, under which is applied the great power of water, expanding into ice; and the fence is lifted up. The intensity of the frost, and the looseness—or wetness of the ground, will determine the amount of upheaval, which may be one or more inches of a winter. Perhaps indeed the post may fall back a little when it thaws; but it seldom if ever slides back to the bottom of the hole; and is sure to take a new start upwards in the following winter.

In these insurrectionary movements, several posts are commonly concerned together; and the best way that I have found to reduce them, is to strike with a beetle only a few strokes at a time on the head of each, so that the fence shall not be racked by driving too far at once. When thoroughly driven back, the operation may not need to be repeated in less than two or three years.

It would be the better and cheaper way however, to prevent all such risings in future by filling up the holes with solid earth; and thoroughly pounding or ramming down every new layer of two or three inches in thick



ness. All soft, mucky, or spongy soil should be rejected. Nothing better than *hard-pan* can be obtained for this purpose—at least a mixture of gravel or small stones through the earth, is desirable. With these precautions, we should have no trouble even in *swales* for the posts even there would stand in dry, firm, solid earth.

D. T.

Cayuga county, 12 mo. 20., 1845.

#### BREEDING AND REARING STOCK.

IN the breeding and rearing of domestic animals, there can be no doubt that the application of physiological principles would be productive of advantage. The more perfectly the farmer understands the habits, organization, and functions of his animals, with the more certainty can he produce from them any specific results—the better will he know how to keep his stock in health or to cure the diseases with which they may be attacked—and by becoming familiar with the philosophy of the hereditary transmission of qualities, he will learn how to improve his flocks and herds so that they shall possess the characteristics which will best fit them for their destined uses.

A late number of the Journal of the Royal Agricultural Society, contains a "Prize Essay on *Fat and Muscle*," by W. F. KARKECK, veterinary surgeon, &c., in which are some excellent observations, particularly applicable to the breeding and rearing of neat cattle. In relation to the improvement of the fattening tendencies of the breed, it is remarked that—

"By pursuing the system of breeding from fatted animals or those having a great tendency to fatten, *function* must react on *organization*, and at last those qualities become, not only increased, but fixed in the race. By function reacting on organization, is meant—when an organ, as the lungs, for instance, becomes diminished in consequence of not performing its natural function, and the disposition to accumulate fat is thereby produced—the diminished structure is very likely to be reproduced in the progeny of an animal so affected; hence the *reaction*; and if the same system be pursued, particularly in breeding from the nearest affinities, this effect will be more speedily produced. It is in this manner that the greatest improvements have been made in our native breeds from time to time—in the Short-Horns and improved Long-Horns—in the improved Herefords and Devons. The history of those breeds sufficiently proves this. The dam of Hubback, the sire of the [improved] Short-Horned race, became so fat that she soon ceased to breed, and her son, having the same tendency, was useful as a bull but a very short period. This was also the case with Bolingbroke and several of Mr. Collings' best bulls. The two cows of Mr. Tompkins, *Mottle* and *Pigeon*, the originators of the improved Herefords, were selected in consequence of their extraordinary tendency to become fat; and the whole secret of Bakewell, as to the method which he pursued to establish the [improved] Long-Horned cattle and the New Leicester sheep lay here."

"There is, (continues Mr. K.,) a delicacy of form and a refinement of tone which characterize animals bred in this manner, and they acquire early maturity; their bone and muscle are more quickly developed and are soon ripe, because they sooner become old. In a wild state and without reference to the wants of man, we should consider these qualities as a progress towards deterioration; and so they are, since the animals suffer by the change—but man gains an improvement. It will be shown however, before we conclude, that by carrying this system of breeding too far in many instances man has also become a very considerable loser."

In regard to the external signs or points of early maturity, and a natural tendency to produce fat or muscle, the following excellent observations are given:—

"The first token which a grazier will make use of, for the purpose of ascertaining the feeding properties of an ox, is technically the *touch*—a criterion second to none, inasmuch as a thick, hard, unyielding hide indi-

cates a bad feeder, and an unprofitable animal. A thin, papery-feeling hide, covered with thin hair indicates the very reverse of the former, as such an animal will speedily fatten, but will not carry much muscle; at the same time it indicates a delicate constitution. This quality is produced in animals by great refinement in breeding, and especially by breeding from animals near of blood; in doing so we should remember that we are deviating from the natural characters, in a point connected with hardness of constitution. The perfect touch in a feeding animal will be found with a thick loose skin, floating as it were on a layer of soft fat, yielding to the least pressure, and springing back to the touch of the finger like a piece of thick chamois-leather. This token indicates hardness of constitution and a capability of carrying plenty of muscle as well as a sufficiency of fat. The physiological history of these tokens is as follows:—The cutis, or true skin, is that portion of the external integuments from which leather is manufactured; and is much more dense and elastic in some breeds than in others. Its external surface lies in contact with a layer of cellular tissue which intervenes between it and the muscle. This cellular tissue contains a larger or smaller amount of fat cells; and the mellow feel which is found in some animals arises from the resiliency or springing back of the cellular tissue in which the fat is deposited, on being touched. Where there is much 'mellowness' in a lean animal, it arises from the free circulation of the blood-vessels through the mesh-work; and where there is a hard feel, it arises from the cellular membrane participating in the hardness of the hide, and therefore being less capable of dilatation by the interstitial deposit.

"*Smallness of bone* is another indication of early maturity, since it must be evident that a breed of animals that will attain their full size of bone at an early age, will be a much more profitable breed to the grazier than one of slower growth.

"The size of the head of an ox affords another indication of a capacity to carry fat in an eminent degree. When the head of the bull approaches to the narrow elongated form of the female, he will be extremely docile, but he will have lost much of his masculine character, and his stock will not carry much muscle.

"The ears should be thin—coarse ears being a certain sign of a coarse breed.

"The horns should be fine—a coarse and thick horn being an indication of an ill-bred animal. Wherever there is a tendency in a breed to thick and coarse hides, the horns are generally formed coarse and thick also.

"A thin neck is another indication of a delicate breed, either in bulls or rams; a thick neck, on the contrary, indicating large muscles and a good constitution. *Proportion* is another sign or token by which to judge of the disposition of animals to carry a fair proportion of muscle. There should always be a proportionate union of length, depth, and thickness; no matter what the weight or size of the animal may be, these properties are indispensable, if the breeder's object is to obtain the greatest weight of meat on the most valuable points.

"The immense difference in the size of the different breeds of cattle or horses is beyond our control. Although man has produced wonders even in this respect. Generally speaking they assume a certain character, dependent on the food which they obtain—for where food is abundant they are found of a large size; and where deficient, they are found of a diminutive breed. But this truth holds good only as regards the different races and not the individuals, for were we to breed the Shetland pony on the best Lincoln pastures, it would take many hundred successive generations before his race would approximate to the size of the breeds that are natural to this district."

In the rearing department, Mr. Karkeck thinks "there is a great deal of mismanagement, even among our best breeders." He alludes to the practice of rearing animals, bulls particularly, without exercise, confined to narrow limits and fed on stimulating food—a practice which he deprecates, as tending to weaken the constitution and muscular vigor of the race,—although it is admitted that it may promote the secretion of fat, and in-

duce early maturity. "But," he observes, "however desirable these qualities may be, depend on it, there are others of an opposite character which are also to be attended to—these are weight of muscle, and the capability of propagating their race—to produce all of which quite a different system must be adopted. There is a certain amount of exercise which muscles require to encourage their proper development and growth, that never can possibly be obtained by a young animal confined in this manner. The degree of activity in the nutrition of muscles depends in a great measure upon the use that is made of them; and thus we find that any set of muscles in continual employment undergoes a great increase in size and vigor, whilst those that are disused lose their firmness and diminish in bulk. Cattle require not such exercise as would harden the muscular fibre, but just so much as would keep the animal in a healthy state and prevent those enormous accumulations of fat which so frequently disfigure and so materially injure our very best breeds of cattle."

Mr. K. advises that—"During the first two years, as long as the weather will permit, the young bull should be allowed to range in the meadows [or pastures;] and when the autumn advances, and it becomes necessary to house him, we would recommend that the house or shed should be attached to a straw-yard, into which he may be occasionally turned during the mild days of winter."

In relation to the rearing of store cattle, Mr. Karkeck remarks that the same care is not required as has been recommended for breeding ones; "but even in this case," he says, "it may be worth the farmer's notice to be acquainted with the fact that nearly the whole of the fleshy part of an animal, which will afford any profit to him, is assimilated chiefly during the period of its growth." Thus, he thinks, "it should be the object of the farmer to force his stock on, during the period of their growth with such kind of food as will produce the largest quantity of muscle at the least expense."

In the commencement of this article, we spoke in terms of general approbation of Mr. Karkeck's essay; but on one or two points we are compelled to believe that practical observation conflicts with his views. It will be noticed that he speaks of small lungs as favoring the accumulation of fat—an idea which we think was first publicly put forth by Professor Playfair, in a lecture before the Council of the Royal Agricultural Society in 1842.

The importance of this subject justifies its being considered at some length. The theory alluded to seems to be founded in the fact that carbon, which is one of the elements of fat, and without which fat cannot be formed, is disengaged from its combinations in the blood, and is thrown out of the system in the act of respiration; or to explain the process more in detail, the venous blood which comes back to the heart is loaded with carbon, and this on being sent to the lungs by the heart's action, it there enters into combination with the oxygen of the air which is inhaled, and forms with it carbonic acid—the latter being expelled from the lungs in the act of expiration.

From this, the idea seems to be entertained that if the carbon of the blood is not consumed in respiration, it may remain in the system and be converted to fat, &c. In other words, the theory is, that the less the consumption of carbon by respiration, the greater will be the accumulation of fat from the food consumed. Prof. Playfair even went so far as to say in the lecture referred to, that—"if two pigs had the same quantity of food, and one had lungs of double the size of the other, that pig would only appropriate half as much of its food in the form of fat."

But in adopting the above theory, have all the important functions of the lungs been duly considered? It is admitted by physiologists that venous blood is charged with matter which renders it no longer capable of affording support to the system—it is in a degree poisonous. Hence nature has provided a means of purifying it, and restoring its life-supporting properties. The lungs constitute the laboratory for performing this purification, and it is reasonable that in proportion to

their development and free action, will be the perfection of the process. Here the noxious portion of the blood is taken away and its place supplied by a substance which qualifies the remainder to nourish and invigorate the system.

Is it not certain also, that the full action of the lungs and a free inhalation of oxygen are essential to the proper action of the digestive organs? The imperfect digestion of animals having weak lungs, indicates this; and it is well known that animals in which fat has accumulated to such a degree that the lungs are compressed, and their inflation prevented, are able to digest but a small quantity of food, and their increase in weight is likewise very small.

It is proper to remark that many distinguished physiologists do not agree with Prof. Playfair in relation to the point under consideration. Dr. Cline says—"an animal with large lungs is capable of converting more food into nourishment, and has, therefore, a greater aptitude to fatten." With this Mr. Youatt also agrees, "On the soundness and capacity of the chest," (observes Mr. Y.,) "depend the size and power of the important organs it contains—the heart and the lungs; and in proportion to their size, is the power of converting food into nourishment." In another place he remarks in reference to the ox—"the broad open breast implies both speed and strength, and aptitude to fatten. A narrow chested animal can never be useful either for work or grazing."

Mr. Read, a veterinary surgeon of high distinction, also dissents from the theory of Playfair. He says:—

"I do not agree with Dr. Lyon Playfair that the lungs must of necessity be small when an animal first begins to fatten; but as the fattening process goes on the internal cavity of the chest becomes smaller, the action of the heart weaker, and the lungs diminish in size in a regular gradation, from various causes; first, from limited expansion; second, from absorption and by pressure of the surrounding parts; and lastly, from quietude never allowing their due inflation which the act of depasturation affords."

In support of the supposition that animals with large lungs do not fatten well, Dr. Playfair mentions that horses have large lungs and are nearly destitute of fat. On this Mr. Read remarks:—

"I well know, and not speculatively, that horses, if fed on meal and potatoes, or turneps, quickly and rapidly make fat." And he states further that on opening those which have died in consequence of having been put suddenly to work after being kept on this kind of food, he has "found them loaded with fat."

Another veterinarian, (Mr. Sparrow,) writes—"on the form and size of the chest depend the soundness, strength, and health of the animal. A capacious chest will afford room to well-expanded lungs; and in proportion to their expansion will they convert a given quantity of blood into a vital arterial fluid, and contribute to the nourishment of the frame."

For our own part we do not think the theory that animals which have naturally small lungs are most disposed to fatten, is sustained by practical observation. The external form, the roundness and capacity of chest, which those animals possess which are commonly most disposed to fatten, certainly indicates a corresponding internal structure or large vital organs; and indeed whenever we have had the opportunity of examining such animals internally, we have always found the lungs comparatively large unless when the animal has been fully fattened. We readily admit that those animals which at the time of being slaughtered, are found to have accumulated fat in an extraordinary degree, usually have small lungs, heart, &c.; but we feel confident they become small during the process of fattening, as described in the quotation above made from Mr. Read.

But even if it were demonstrated that small lungs are most conducive to the formation of fat, it would by no means follow, that it would be wise for the farmer to breed cattle with this organization. The animals must be capable of exertion—they must be able to procure their food by grazing, often in situations requiring considerable muscular strength and activity—they may



be required to draw the plow and perform other farm-labors—and they must possess a hardiness of constitution that will adapt them to the climate in which they are placed. All will admit that for these purposes the blood should be properly decarbonized, that it may receive from the atmosphere a due portion of that life-giving principle which alone can insure the health of the system, or infuse into it power and energy to perform strong muscular action—effects which can be produced only with a full development, soundness, and healthy action of the organs of respiration. This point, upon which physiologists are agreed, is so abundantly supported by experience and observation as to render any further attempt at illustration unnecessary.

That a tendency to fatten readily and to any desirable extent, is not incompatible with strength of constitution and muscular vigor, is practically demonstrated in certain breeds of cattle—a striking example being furnished by the *Kyloes*, or West-Highland cattle of Scotland. In hardiness and activity, these cattle, according to the accounts given of them, are scarcely surpassed by the buffaloes of our western prairies; yet it is the opinion of many whose experience well qualifies them to judge, that their fattening properties are not exceeded by any other race; and the superior quality of their beef, in the markets where it is known, is universally admitted. We do not mean to say that these or any other animals, acquire fat to a great extent while in very active or laborious exercise; but we refer to them as showing that a constitutional ability to perform or endure all that can reasonably be required of cattle, is not inconsistent with good fattening qualities.

In a future number we propose to make some remarks on the subject of breeding from near affinities, or the “*in-and-in*” system as it is called, which has been referred to in the remarks we have quoted from Mr. Karreck.

#### THE DAIRY—BUTTER MAKING.

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LUTHER TUCKER, Esq.—I enclose an extract from a report on butter, made to the R. I. Society for the Encouragement of Domestic Industry. If you think it worth inserting in your valuable paper, let it appear as early as possible. The rock salt must go up this winter, to avoid the heavy canal tolls, and the small white oak kegs must be contracted for soon. Half the winter's butter used in Rhode Island comes from the state of New-York, and its price is diminished from four to six cents a pound by the use of Salina salt. This is a heavy tax on the farmer.

Butter made agreeably to the following directions sells in the Providence market readily—in large 100 lb. kegs, at 25 cents per lb. If in the small kegs, of from 25 to 50 lbs., it brings from 25 to 27 cts. The same butter salted with New-York salt, would only be worth from 19 to 22 cents per lb.,—and by the first of April it would be bitter and rancid. Your salt is not preservative; it will not answer for beef, pork, or fish. Why should it be used for so delicate an article as butter. Its bitter taste, and its easy solution in damp air, are no objections to its use for cheese.

STEPHEN H. SMITH.

Smithfield, (R. I.) Dec. 23, 1845.

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#### BUTTER MAKING.

MILK APARTMENTS, &c.—The milk cellar should be deep, well ventilated, and dry; the bottom covered with stone flagging. Well rammed clay is preferable to bricks, as they will absorb milk, and other liquids that may fall upon them; they cannot be cleansed, and will soon contract mildew, the smell of which, like the odor of cheese, vegetables, fish, or foul air of any kind, will be imparted to the cream and butter. Over this cellar should stand the dairy room, with shelves to set milk upon in cool weather; the cellar to be used during the extremes of heat and cold. The temperature of the milk apartment, if possible, should never be

above 65 degrees nor below 45 degrees. Set-kettles should not stand in the dairy-room; neither should churning, cheese-making, or cleansing milk vessels be done there, but in a convenient room near by.

Cream may be kept good much longer, if it be kept in a white-oak vessel, with a tight cover, and a faucet or tap near the bottom, to draw off the milk, when it settles, before the customary daily stirring. The quality of the butter is much improved by this management. If the milk be not drawn off, and it be churned with the cream, the butter will be longer in coming, and it will show specks of sour curd, taste like cheese, and will soon become rancid. Butter will come quickly, at all seasons of the year, if the cream be of a temperature of from 60 to 75 degrees; to this end, use hot water in winter, and ice in summer, but never add either to the cream in or out of the churn.

SALT.—Pure salt chrysalizes into perfect cubes. All other forms of chrysalization found in common salt, arise from impurities; those of a needle shape in Liverpool bag, or blown salt, indicates the presence of lime, magnesia, &c. Epsom and Glauber's salt are frequently found in small quantities; in the process of making salt they chrysalize last; when water is added, or on exposure to damp air, they dissolve first; hence washing salt purifies it. One great cause of the failure in making good butter, may be traced to the use of impure salt.

Rock salt, and the large lumps of Turk's Island salt, washed, dried, and finely pulverized, are preferable to all other kinds, being highly preservative, and hardening the butter, so that it will be sooner ready to work over in warm weather. The Liverpool bag or blown salt, the Salina salt in small bags, from New-York, and the fine part of every kind of imported salt, contain a great portion of impurity; they are not preservative, do not harden the butter, and give it a bitter taste.

Less than one ounce of pure salt, is sufficient for a pound of butter; (many put in half an ounce; in all cases leave out sugar and saltpetre.)

In the manufacture of cheese, a preference is sometimes given to Liverpool bag or blown salt. This salt contains salts of lime and magnesia, which attract moisture from the air, and have the desirable effect of softening the cheese; and the pungent, bitter taste which they impart to it, is an improvement in the estimation of some.

GENERAL REMARKS.—The cream should not rise more than 36 hours; it should be sweet when taken off and sweet when churned; yet there is a degree of maturity, to be acquired by keeping. The kegs, for packing butter should be made of white oak, bilging in the form of casks, for the more perfect exclusion of air, and convenience of transportation. If the butter is not to be sent to a warm climate, or a foreign market, let the bilging kegs have movable covers to accommodate inspection; they should be soaked in a strong brine, made also of pure salt, in order that justice may be done to the purchaser, in tare; and to save the butter from being spoiled, to the depth of one or two inches all round from its contact with dry wood. In case the wood is anything but white oak, there is danger of its giving an unpleasant taste to the whole. For the convenience of families, the size should vary from 25 to 50 pounds. A large keg of butter is exposed to the air for a long time while on broach in a small family; the bottom in consequence becomes rancid.

The consumer will cheerfully pay an extra price for 100 pounds of butter, packed in four kegs instead of one. No salt should be put on the sides, bottom, or between the layers. If the kegs are made with covers, put a cloth over the top and cover that with pure fine salt. Keep a cloth wet with strong brine, over the butter while the keg is filling, to exclude the air. The practice of washing butter is not approved of in Europe; it destroys its fragrance and sweetness by dissolving the sugar of milk, which, it is said, is always present in good butter. It is practiced in Holland, when the article is designed for exportation to India; then the operation is performed with cold, strong, limpid brine made of pure salt and pure water; water that has lime

in it will not answer, as the lime is readily absorbed by the butter.

To exclude the air more effectually during the process of putting down, let a little melted sweet butter be run into the cavity, where the bottom head and staves come together, then after each layer is completed let the dairy woman pass her finger round so as to press the butter hard and close against the side.

#### MR. MITCHELL'S LETTERS—NO XII

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##### AGRICULTURE AND VINEYARDS OF SWITZERLAND.

Paris, Nov. 14, 1845.

LUTHER TUCKER, Esq.—My last spoke generally of the agriculture of Switzerland, from which it is impossible for us to take many practical lessons, except indeed, this—the best lesson in the world, but which most are slow to learn—that however forbidding may be the circumstances of a man's lot, so far as exterior things are concerned,—industry and prudence will in almost every instance secure him a livelihood. The Swiss peasant, some thousand feet above the level of the sea, with so little herbage for his winter's flock that he cuts it with a sickle, and carries it home in a blanket—with so little grain in his fields, that he with his dame and their daughters pick the heads from the stalk, and carry it home in their aprons, (a sight I have often seen)—liable too, to have his little grain torn up by the mountain torrent, or his chalet and his all crushed by the avalanche, yet gathers his harvests contentedly, for they are sufficient—nor quarrels with nature—nor, fortunately, once dreams of those rich meadows in our western world, waving with luxuriant vegetation, and harvested only by decay.

Among other products of the country not unworthy of mention, if I may judge by the assiduity with which the crop was gathered, is the English walnut, as we call it, though it is I believe indigenous to Switzerland. The leaves and fresh shoots of the white ash are in many parts, carefully collected and dried, to help out the stock of winter's fodder. A small wild apple is frequently met with in the lower mountains of the canton Vallais, of an exceedingly acrid taste. I could not learn that any use was made of it. One is astonished to see the gentleness of the flocks quartered in the mountains. In passing over the Col de Balme from Martigny to Chaumony, I met with a nice flock of their long-wooled sheep in the forest. I offered my hand to invite them to me. One by one they came up, crowding about me—some licking my hands, others smelling at my knap-sack, and it was with some difficulty that I could rid myself of their favors. I suppose it arises from their rarely seeing a person in those solitudes, and generally only the shepherd who comes to bring them their weekly allowance of salt. I have spoken of the minute division of property into small parcels, and each one's quiet possession of his own. It was very observable at Chamounix, where after harvest, the cows are pastured over the valleys, and the cows of each one confined to their particular bit of herbage, by merely laying down sticks along the line of division. And so well instructed seemed the animals in the method, that they rarely took a nip outside these slight bounds. In such event, however, some little urchin was sure to start up from the neighborhood with a switch, and enforce the rule. At the period of my visit, the inhabitants were busy in harvesting their potato crops. The method has been previously described. They were not free from disease, and nearly one-third were thrown aside at the gathering, the trouble precisely similar to what I had observed previous to leaving America. The sad failure of the crop in Ireland, and its general failure throughout Europe, will have received your notice before this will meet the eye of your readers. The evil can hardly be overrated, and its issues may prove most disastrous. Such issues are not unfared even in Switzerland, where the potato in many districts is as much the chief aliment as in Ireland. Many a peasant's dinner have I seen made out of potatoes and milk only,

and many are the regrets which I have heard expressed in no unmeaning terms, at the calamitous event. Projects upon projects here as with you have been proposed and exploded, for staying or remedying the evil.

The country up the Rhone for many miles above Lake Geneva, is exceedingly level and fertile—of course I speak only of the valley between the mountains. The crops are almost as various as in New-England—orchards abound, though the fruit is not superior; and the wild grass may be seen growing in the meadows to the height of 6 or 7 feet. It is useless except for litter. Near the lake, and upon the edges of the hills, the vine is cultivated with great success. So profitable even is every little spot that faces the sun, that cliffs are thrown down, and rocks are covered with earth to give place for culture. Upon the northern shores of the lake the cultivation of the vine is almost exclusive. The wine however is not held in high esteem, and the enormous rents are due only to the abundance of product. The purple grape in all this region, is rarely seen, and in the canton of the Vallais it enjoys the patronage of the government, having among other marks of distinction, a guard appointed to protect it from depredation,—to which I may add, its white neighbors are exposed at the hands of every passer by. I have previously spoken in unfavorable terms of the appearance of the European vineyards—an exception is to be made, however, and a very full one, in favor of one at harvest time, loaded with rich purple clusters—than which there can be no richer sight in the whole vegetable world. The grapes are gathered by men, women, and children; for the most part gathered into funnel shaped tubs, carried upon the backs of the men.

The methods of pressing are various—some resembling strongly our cider presses. I left Switzerland as I entered it, by way of Geneva, around which the country is cultivated in the best style, and not in a few instances under the direction of English landlords. Its hedges are like English hedges, and its roads like English roads. The tastes of its inhabitants have too a smack of rurality. There are public walks shaded with the richest native trees, or a public garden where the poorest may study botany better than in books. When shall we have such things? When we are wiser surely; and when we are richer, surely—for we shall be richer for having them. (It is the steamer's last day, and I am hurried.) Truly yours, D. G. MITCHELL.

#### POTATO FLOUR.

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POTATOES which are unsound may be converted into starch, and thus saved from total loss. In England and Ireland, where the ravages of the potato disease have been seriously injurious, it has been attempted to preserve the valuable properties of the root by extracting the farina of flour, by various processes. It is converted into "British arrow root," which is nothing more than starch in a nice form. The Farmer's Magazine gives the following as the most perfect process of obtaining the flour:

1. Thoroughly wash the potatoes.
  2. Peel away the skin without cutting off much.
  3. Grate the peeled potatoes finely into a pulp.
  4. Place the pulp on a hair sieve, pour water over it, stirring it about well, till the water ceases to pass with a milky appearance.
  5. The pulp left on the sieve may be thrown away, [or given to animals] and the milky water set aside to settle.
  6. When the particles of starch have all settled, the water should be poured off, and fresh water added; the whole stirred up afresh and allowed to settle again.
  7. These washings may be repeated four or five times, when the starch will have assumed the character of arrow-root, and will have become white as snow, whilst the water will now be perfectly clear.
  8. The prepared flour must be thoroughly dried and may be kept for any length of time in jars or casks.
- The flour or starch may be dried by being spread on



a cloth and laid on a board in the sun, or it may be dried in shallow vessels in a warm room; or it may be dried in stoves or ovens. Prepared in the manner described, the flour may not only be used as starch, but may be used with wheat flour for making bread, puddings, &c. It is also used as arrow root, and is a delicate food for weak digestions, for children, and for the sick.

#### MR NORTON'S LETTERS.—NO. XX

##### ..... ENGLISH FARMING.

Laboratory of Ag. Chemistry Association, }  
Edinburgh, Nov. 27, 1845. }

L. LUCKER, Esq.—During the earlier part of this month, I spent nearly a week, in company with two other pupils of Prof. Johnston, in travelling across the northern part of Northumberland and Cumberland, from North Shields to Carlisle.

In giving a brief sketch of our progress, I shall only have space to mention those things that more especially interested us. Between North Shields and Newcastle, the country seems tolerably fertile, but wet in many places. Some of the farms bore evidence of skillful management. On the south bank of the Tyne, I was surprised to find that none even of the neighboring farmers seemed to make use of any of the kinds of refuse from the extensive Jarrow chemical works. Immense quantities of impure sulphate of lime, (gypsum,) formed in the carbonate of soda process, are thrown away. Pure gypsum is so cheap that this substance would not pay for transportation to any distance; but those who live near might surely avail themselves of it.

Hexham was our first stopping place after leaving Newcastle. I have spoken of the Tyne up to this place, in a former letter. We drove the same day 7 or 8 miles from Hexham up the banks of the North Tyne. We here saw some farming that, so far as our experience went, we unanimously decided to be superior to anything in Durham. I suspect that the Tyne side farmers owe much of this superiority to natural advantages. The soil is not so stiff as that of Durham, and generally lies so as to ensure in a great degree natural draining. Some of the fields of turneps were particularly fine, and from the appearance of the stubble we judged that the grain crops had also been very good; though the quality was somewhat injured by a long continuance of wet weather.

High up the North Tyne, we came into a wilder country, and visited the farm of Mr. Ridley, called Park End. He is chiefly a stock farmer, and keeps his herds during the summer among the hills and on the moors, bringing them down during the winter. Few of them had come home at the time of our visit, not more than twenty. His stock is nearly all Durham, and I was surprised by the size and beauty of some of these animals, which had been always kept on poor, bleak moors, without shelter. Though of course, inferior to what they would have been if kept up and fed highly, they were still large of their age, and promised to attain a very good weight, showing that the full-blooded Durhams can *rough it* if necessary. Mr. R. is quite a pig fancier, and has a considerable variety of the most approved breeds. We only had time to walk through one or two fields; these needed draining; the pastures were mossy, and required top dressing in addition to the drain. We found the potato disease doing great injury here as elsewhere, several persons estimating that about one-third of their crops were affected.

The next day after our return to Hexham, we were upon the farm of Mr. Harbottle, and there found the disease worse than in any place we had visited. He himself told us that not one in a thousand was sound, and on examination of the heaps we did not find even one untouched. He has about 40 tons, and is now feeding his horses, pigs, and cattle upon them, with no bad effects. The best thing he could do, would be to convert such as he cannot soon feed out into potato flour. It can

be done at a small expense, and is infinitely preferable to wasting the time in vain attempts to preserve such a large quantity of infected tubers.

On our way from Hexham to Carlisle, by railway, the greater part of the distance was over a high and somewhat bleak country, except on the very borders of the streams, where were uniformly fine farms and large crops. Some of the Swedish turneps near Hexham, were quite remarkable. We saw in some places, but not many, piles of draining tiles, in this climate the indispensable preliminaries to anything like thorough improvements. Another good sign was the presence of lime kilns wherever any limestone appeared at the surface. Near Carlisle, the appearance of the country greatly improved, and we noticed some particularly good pasture fields.

After two or three days at Carlisle, we crossed the country, 94 miles, to Edinburgh by coach. Some of the country on the banks of the Ettrick and Tweed was very beautiful, and showed evidence of good farmers. The day was one of the worst that even this climate can produce, cold, windy, and foggy, with a pelting shower once in about half an hour. This may have had some influence in our decision, at which we unanimously arrived, that the greater part of the country from Carlisle to Edinburgh, was wet, and that the farming generally was not such as should exist in Scotland.

With the present letter I must close a series which has extended through a period of eighteen months. I am about to make a short tour upon the Continent for the purpose of seeing some of the most celebrated laboratories. My stay in each place will be brief, as I intend returning home early in the spring, and I shall therefore have no time for any writing but such as is absolutely necessary. Your columns have enabled me as it were to keep up a communication with my country in general, in addition to private correspondence. I should be quite satisfied to know that your readers have experienced half the pleasure in the perusal that I have in the writing of these letters. Hoping again to be your contributor, in our own country,

I am very truly yours, JOHN P. NORTON.

#### KITCHEN CHEMISTRY.—No. I.

##### ..... VINEGAR.

PRINCIPLES.—If a solution of pure sugar in water, be carefully excluded from the air, it will remain perfectly unaltered for any length of time. If the air have access, it gradually becomes sour, but no alcohol is formed. But if some organic substance be introduced which is itself in a state of slow decomposition, the particles of sugar partake of the same change, and alcohol is the result. Yeast is specially active in inducing this kind of fermentation; it is also effected by blood, white of egg, glue, and flesh, if they have begun to putrify. But the most important substances in practice, are vegetable albumen and gluten, which exist in all fruits and seeds, differing only in character in different plants. If the fruit remains entire and uninjured, the air is excluded, and the gluten is unchanged; but if it be crushed or broken, air has access, oxygen is absorbed, and the fermentation of the fruit commences by the combined action of its sugar and gluten. The necessity for oxygen is only at the commencement; after fermentation has begun, it proceeds through the whole mass, though the air be excluded. Yeast is nothing more than a mass of vegetable gluten (mixed indeed with other substances) after the slowly fermenting process has actually commenced.

As a solution of sugar is not converted into alcohol, without the addition of a third fermenting substance, so a solution of alcohol is not converted into vinegar, without such intervention. Cider in this country, malt liquors in England, and fermented grape-juice in wine countries, are used for making vinegar. All these contain an abundance of organic matter, which induces fermentation; they absorb oxygen from the air, and give off hydrogen in the form of water. Hence, unlike the

vinous fermentation, the presence of air is essential through the whole process of making vinegar. But it must not be largely admitted, lest it carry off certain volatile parts essential to success. The mucilage and other organic matters, after decomposition is effected, settle to the bottom, in a gelatinous mass, termed *mothers*.

**PRACTICE.**—In England, for domestic purposes, vinegar is prepared on a large scale, from a mixture of barley or malt with water, by keeping the wash exposed in open vessels to the air, in rooms heated to a particular temperature. The fermentation is promoted by the addition of a small portion of acetic acid.

An excellent mode also consists in exposing to the air, one part of brown sugar by weight, with seven parts of water, and a small quantity of yeast, in a cask whose bung-hole is covered by gauze to exclude insects, for some weeks to the action of the sun's rays. Fermentation is promoted and the quality improved by the addition of grape leaves.

An acquaintance made excellent vinegar for home use, as follows:—A gallon of molasses and a barrel of cider were mixed, and warmed in a large kettle, after which the mixture was put in a barrel, with a few sheets of brown paper, and kept in a warm place with the bung open, through which a stick was inserted for stirring it, to break the scum and admit the air. The vinegar was drawn as needed, and the deficiency supplied by occasional additions of cider, which is in turn converted into vinegar.

All these modes require several weeks at least. A great improvement in this respect has been made, on purely scientific principles, by which good vinegar may be made in twenty-four to thirty-six hours. A barrel is filled, except a vacant part at the bottom, with wood shavings. The top is closed by a pan, which fits into it, the bottom of which is perforated by a number of small holes, and through these short threads are passed, to bring down the liquid more rapidly. The shavings, before using, are well steeped in vinegar, which of itself strongly induces fermentation. Near the bottom of the barrel, its sides are perforated by a number of holes half an inch in diameter, for the admission of air, which passes up through the shavings, and escapes through several tubes, passing up through the pan and through the liquid in it. An alcoholic liquor, mixed with about a thousandth part of yeast or honey, is then poured into the pan, and it trickles down the orifices by the threads, spreads over the shavings, and thus has its surface very largely exposed to the air. Before pouring into the pan, it is heated to about 75 degrees, the rapid absorption of oxygen among the shavings soon raises the temperature to 100 degrees; the heat causes a current upwards by the holes in the barrel, through the shavings, and by the tubes in the pan, by which the supply of oxygen is kept up. The liquid passes down, and escapes through a pipe at the bottom. The operation is repeated, and after passing through in this manner three or four times, the liquid is converted into excellent vinegar; the whole time not exceeding twenty-four to thirty-six hours.

#### POTATO CULTURE.

WILLIAM R. LATTA, of Virginia, informs us that he has tried the plan of cutting potatoes in the middle and planting the two ends separately. The result has been that the sprout or "point" end has produced most, but the "stem" end has given potatoes of the best size, and far superior to those of the "point" end for table use. Mr. L. also states that he has tried the plan of thinning the tops of potatoes. His practice had been to plant the largest potatoes without cutting, but noticing that they produced a large proportion of stalks or tops, he took a part of a field of potatoes and thinned alternate rows. The number of stalks to the hill was from ten to twelve, and they were thinned to four and five. The effect was to lessen the yield in the rows that were thinned, but the potatoes were of better size and quality.

#### WINTER FOOD FOR DOMESTIC ANIMALS.

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IN most parts of the northern states, a very large portion of the year requires the feeding of dried or stored food to domestic animals. Usually one half of the last month of autumn, the three winter months, and at least two of the spring months, must be passed without the aid of pasture, throughout the more northern regions of our country, amounting to almost half of the entire year. It hence becomes one of the most important of all questions in farming,—what are the cheapest and best kinds of food for the subsistence of domestic animals through this long and costly period?

The article which stands at the head of the list, as being the most largely used as well as the most important every way, is meadow-hay. But auxiliaries are needed; not only because the hay crop is often greatly diminished by drouth, but even when abundant, a mixture of other substances contributes to the health, comfort, and thrift of the animal. Greater cheapness, too, is attained by a portion of other kinds of food. An examination and comparison of these, hence become a matter of considerable importance.

In addition to hay, may be mentioned,—as among those substances which are either in common use, or should be,—carrots, ruta-bagas, straw, beets, potatoes and grain. The propriety of the use of these may be judged with tolerable correctness, by taking their respective nutritive values, together with their cost in raising, and comparing them thus with hay. In the following table we have taken a few of the more commonly cultivated roots, and deduced their nutritive value from the actual experiments of a considerable number of distinguished agriculturists, the mean or average of the results they arrived at being taken. The figures indicate the number of pounds of each, needed to be equal to 100 lbs. of hay.

Carrots,.....	276
Ruta-bagas,.....	300
Mangold-wurzel,.....	317
Potatoes,.....	201
Common turneps,.....	494

It will be perceived that potatoes are the most nutritive, carrots next, then ruta-bagas and mangold-wurzels are nearly equal, while common turneps are far behind all the rest. Then as to the expense of raising. The same degree of fertility in soil will give about 250 bushels of potatoes, 500 of carrots, 600 of ruta-bagas, and 700 of mangold-wurzels. This is mere estimate, but is probably not far from the truth. The cost of seed and planting is greater for the potato than the other crops, but the after culture rather less; on the whole, the expense of raising an acre of each will be nearly equal. The cheapness of seed and ease of sowing are in favor of ruta-bagas, but on cloddy soils this advantage is more than balanced by danger from the turnep-fly. It is understood as a matter of course that in these estimates, the best culture is to be given,—that is, all the roots but the potatoes are sown in drills, from two to two and a half feet apart, not more,—that they are hoed as soon as they are up or before two inches high, which not only greatly reduces the labor, but allows an early and vigorous growth; and that clean, well tilled, and fertile land is selected for them, and not rich waste land loaded with the seeds of millions of weeds, which without the cost of much labor, get the ascendancy, and choke down the young crop.

Taking all these circumstances into account, it will be perceived that carrots, ruta-bagas, and mangold-wurzels stand nearly on equal grounds as to merits. But the far greater avidity with which horses will eat carrots, the excellent butter which results from their use when fed to cows, and the little injury they receive from frost, even when the crop or a part of it is left to winter in the ground where it grew, give this crop most eminently the preference.

Now for the cheapness of roots as compared with hay. A ton of hay, according to the experiments already mentioned, is equal to 5500 pounds of carrots, which at 60 pounds to the bushel would be 91 bushels



One acre of carrots, then, or 500 bushels would be equal to 5½ tons of hay. According to our own experience, such a crop may be easily raised and harvested for fifteen dollars, which would place the carrots as a cheaper food than hay, if the hay were only three dollars a ton. But the superiority of the condition of horses and cattle, when fed freely on carrots with hay, is an additional advantage.

**Straw.**—The following shows the comparative nutritive properties of straw, by indicating the number of pounds needed to be equal to 100 lbs. of hay. But it must be observed that these results will vary greatly with the ripeness or freshness of the straw, and other circumstances connected with its growth or condition.

New wheat straw, .....	272
Oat straw, .....	166
Barley straw, .....	176
Pea straw, .....	169
Clover hay, .....	94

But as the quantity of straw is wholly dependant on the quantity of grain raised, and is in fact only a secondary crop, the amount which each farmer possesses can only be controlled by economy in saving what he has, which cattle will eat freely, if mixed with hay and chopped, or alone, unchopped, if well salted. For further hints on this point, see p. 381 of our last vol.

There is another item of cheap and nutritious food in the shape of corn-stalks, sown for fodder. The value of common corn-stalks, raised for the grain, depends greatly on the quality, and the amount which cattle can consume without refuse, depending on the size of the stalks, variety of corn, &c. But when the corn is sowed thickly for fodder alone, all is consumed, and a ton is probably fully equal to a ton of hay. Five tons at least, (according to repeated trial of the writer,) may be raised as follows on an acre of respectable fertility, say rich enough for 500 bushels of ruta-bagas. Plow and harrow as usual; furrow one way two and a half feet apart with one horse; strew three bushels of corn to the acre along these furrows from a basket; cross-harrow to cover the corn; pass the cultivator two or three times along the rows, but not hoe them; and mow with scythes, dry, and draw in. The whole expense, including interest on land, need not be more than twelve dollars,—placing the cornstalks, which are more palatable for cows than any hay, at less than two and a half dollars a ton. There is no exaggeration about this, but is the result of repeated trial.

An objection is made to the extensive use of roots, on account of the difficulty of keeping them and feeding them out through winter. But this objection must disappear at once if a good *root-cellar*, close at hand, is constructed. The farmer must have a barn for his hay, and he must have a cellar for his roots; the latter need cost no more than the former. The objection, therefore, should vanish.

Another objection is, that animals do not like roots—will not eat them—or it is hard to learn them to eat. This difficulty may be variously obviated. Cattle scarcely ever refuse any kind of roots. Horses and sheep reject them at first; but perseverance, short allowance, or chopping up fine and mixing with meal, and then gradually returning to a coarser chopping, and a diminished quantity of meal, will usually do the work. We have learned old horses, which totally refused ruta-bagas at first, to gnaw down whole ones with great avidity, and a neighbor regularly wintered his store hogs mainly upon them without cooking.

The comparison of different kinds of grain, with hay, according to the before mentioned experiments, is as follows:—

Corn, .....	52
Barley, .....	53
Oats, .....	67
Peas, .....	47
Wheat, .....	46

Eighteen bushels of corn, will therefore be equal to one ton of hay; the farmer can judge from prices whether a loss or gain would result from a free or scant use of this grain. He can also apply the same rule to other kinds of grain.

On reviewing these estimates, it will be perceived that the greatest loss which farmers usually sustain, is from the neglect of the free culture of root crops, and of corn-stalks for fodder. An abundance of roots at hand would enable the farmer to save one-half of the hay usually fed to cattle,—or one quarter of the whole cost of feeding them. An equal saving would result from the use of corn-stalk fodder. Taking, then, these two articles together, and not forgetting the increased amount of butter and milk and the improved condition of the animals, it is probable that one-half the expense of wintering cattle would be saved by an improved system; and perhaps equal advantages would result in the keeping of sheep and horses. Making allowance for difficulties in introducing such a system in poor soils or unfavorable localities, and calling the gain only one quarter,—what would be the total gain in the state of New-York alone? There are in the state, according to census, about 470,000 horses, 1,900,000 cattle, and 5,000,000 sheep; the total expense of wintering them cannot be less than twenty millions dollars, at a low estimate; one quarter of this would be *five millions*, saved every year, in one state.

The saving which we have made ourselves, and which we have seen successfully practiced by others, satisfies us that these estimates are very moderate, and that this conclusion arrived at is not speculation, but positive and existing fact. The great assistance which such a system would lend, to fertile and compact culture, instead of skimming and surface work, by increasing manure and fertility, should induce every enlightened agriculturist to labor assiduously for its general extension.

#### ADVICE TO WESTERN EMIGRANTS.

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WE have received from ANDREW STONE, M. D., of Crown Point, Lake Co. Ia., an article under this head. He thinks a great error is committed by emigrants in general, in not properly considering the difference in localities in regard to healthfulness. The "great rush," he says, is for *rich* land, almost regardless of other circumstances. These rich lands lie mostly on the borders of streams, which, Dr. S. says, are very frequently the most unfavorable to health. He remarks, very truly, that—"No one in a new country can be better capable of knowing where sickness mostly prevails, and what situations are most likely to be healthy, than a long settled and experienced physician. For seven years," he continues, "I have labored assiduously in the profession, in the west. Six years previous to the last, were spent on Spoon river immediately at its intersection with the Illinois river in Illinois. From accurate observation and inquiry, I can vouch for the fact that nine-tenths of the cases of sickness I have known during this time were confined to the borders of rivers and streams. And what is another important fact to be kept in consideration, is, that the sickness occurring on the streams is far more difficult to manage, and is much more fatal than the sickness which occurs on dry lands at a distance from streams."

The cause of this, Dr. S. thinks, is the miasma from the decomposing vegetable matters of these alluvial soils, which, under the intense heat of the summer's sun, rises and fills the air—rendering it "almost a deadly poison." "Let me advise you who are coming to the west," says Dr. S., "to choose a high, dry, and rolling piece of ground, at a considerable distance from streams; avoid also, ponds, and stagnant water of any description. You had better go a few miles further to haul your produce to market, or raise a few bushels per acre less, and enjoy health, than choose an unhealthy situation with the consequences I have named." He gives a melancholy picture of the sufferings the emigrants sometimes endure. He says—"In one family, I have seen nine persons sick at one time—one dead, and another dying. At the same time that this fatal sickness was prevailing on the river bottoms, there were families living at the distance of half a mile, above the bluff, who had there for years enjoyed good health."



SHEPHERD'S DOG.—Fig. 13.

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THERE are several breeds of dogs which may be trained to watch and drive sheep. We have seen at least three varieties which came from England and Scotland, one or two from Germany, and a very large kind from Spain. Which of all these varieties Buffon alluded to as being in his opinion the root of "all the canine race," we have no means of knowing; but the English sheep-dog, with a sharp pointed muzzle and long glossy hair, has more the appearance of a pure original stock, than any we have met. The above figure seems to have been taken for a rough-haired dog, such as we have in two or three instances known brought from Germany. Mr. Bynler, the principal of the German community at Zoar, Ohio, had sheep-dogs of a similar appearance, a few years ago.

Many shepherd's dogs exhibit a wonderful sagacity in the performance of their task, and no animal can be considered superior to them in usefulness to man. But we have not room to relate here, any of the remarkable instances which are recorded of their half-reasoning powers.

There is a breed of sheep-dogs in Spain, which is at least three times as large as the common English sheep-dog, and are said to unite the intelligence and faithfulness of the latter with a courage and strength superior to the mastiff, or any other dog. We saw an imported dog of this breed, several years since, and we are certain that we never saw any other dog whose size and form indicated such amazing strength. Some of these dogs were imported into this country, over thirty years ago, and in the third volume of the Memoirs of the Philadelphia Society for Promoting Agriculture, we find a letter from P. Bauduy, of Delaware, describing the Spanish dog *Montagne*, of which he was the owner. The description is accompanied by a copper-plate engraving, and from the explanation given in connection with the plate, it appears that this dog at eighteen months old, measured two feet and eight inches from the bottom of the fore foot to the top of the shoulder, and three feet and eleven inches from the nose to the end of the rump. The breed is not only ferocious towards wolves, to guard the flock against which they are kept in Spain, but their antipathies are equally as strong towards other dogs which offer any injury to the sheep. Mr. Bauduy, in the letter above mentioned, states that his dog was endowed with all the good qualities of other dogs, "possessing immense strength, great mildness in his usual deportment, though ferocious towards other dogs. I can say, without exaggeration, that at least twenty dogs have been killed in my barn-yard or on my farm by him." \* \* \* "The natural

instinct of this animal is to guard sheep against wolves and dogs. No other training is required but to keep them constantly with the flock, the moment they are from the litter, till they are grown." The color of Montagne was perfectly white; the one we saw was yellowish white, and the breed is said to range from these colors to dun brown. We would advise the flock-masters of our western states, whose sheep are in danger either from wolves or prowling dogs, to import the Spanish sheep-dog, as affording the best possible protection to their flocks. We may give a cut of the Spanish dog hereafter.

#### MAPLE SUGAR.

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THE superiority of fine white maple sugar, over the dark chocolate colored article often seen, and the higher price, and readier sale it commands in market, render very desirable the knowledge of the cheapest and best mode of manufacture. Some of the best sugar, which has obtained the premiums of the State Agricultural Society, has been made white and pure by redissolving that which was first made, subjecting it to the purifying process, and again evaporating; and in making the very best this process has been repeated, making it necessary to evaporate three times, before the sugar has become perfectly white. Some was exhibited at the State Fair at Utica, which, by the use of the strictest cleanliness throughout, and evaporation in pans, was as white as loaf sugar, with only one repetition of the evaporating process.

One of the heaviest drawbacks on the general manufacture of maple sugar, is the amount of fuel consumed; and this must of course be greatly augmented, where two or three evaporations have to be employed. The following method, which may not be generally known, obviates all this difficulty, at the same time that it affords sugar equal in every respect to the whitest loaf-sugar of commerce. An individual, of very moderate means, well known to the writer, made over a hundred pounds of the purest white, in one season.

The tubs for collecting the sap are perfectly clean—and are scalded with lime-water before using. The tub or reservoir in which the unboiled sap is kept is treated in the same way, and is kept constantly covered to exclude dust; if warm weather comes on during the sugar season, lime, equal in bulk to a hen's egg for a hogshhead of sap, is put in this tub. The sap is poured into it through a strainer, and the strictest cleanliness observed in every part of the operation.

When boiled down sufficiently, the syrup stands over night to settle. It is then carefully poured off the sedi-





## SHEEP AND WOOL.

ILLUSTRATED BY A GROUP OF MERINOS.

THE plate herewith given, represents a group of prize Merino sheep, belonging to SOLOMON W. JEWETT, of Weybridge, Vermont. The figure in the foreground is that of the noted buck *Fortune*, which received the first prize and gold medal of the American Institute at the exhibition in New-York city in October last. The other figures are those of ewes (with their lambs) which were among a lot of five that took the first premium at the exhibition of the Addison county Ag. Society, at Vergennes last season, where there were more than one thousand fine woolled ewes shown.

The buildings in the back-ground represent Mr. Jewett's residence, with some of his barns, &c.

When in Vermont last season, we had the pleasure of examining Mr. Jewett's flock, including the fine animals whose portraits are here given. He has upwards of seven hundred sheep, mostly descendants of the imported Merinos of Messrs. Humphrey, Jarvis, De Wolf, Cuff, and Cock, with some purchased of Wm. Davies, Esq., of Poughkeepsie. *Fortune* was the produce of an ewe of the Cock stock, by *Consul*, bred by Hon. Wm. Jarvis. [See Cultivator for 1844, p. 378, '79.] He is a large-bodied, short-legged sheep, carrying an enormous fleece, which, though not the finest, is of good quality. He is seven years old—was not sheared last season, but the six fleeces which have been taken from him averaged *eleven and a half pounds*, well washed. He has been used for two hundred ewes annually; and his progeny, which are widely scattered over the country, have received numerous prizes, both of state and county agricultural societies, and are much esteemed for their hardy constitutions and heavy fleeces.

The ewes are very handsome animals, bearing a large quantity of long, soft, strong wool. Mr. Jewett certainly deserves credit for the spirit he has shown in purchasing at liberal prices many of the best Merinos in the country; having in this manner formed a breeding-flock from which much valuable stock has been disseminated.

## GENERAL ADVANTAGES OF SHEEP HUSBANDRY.

Although sheep-husbandry in this country has been lately much extended, it is probable that it has not yet reached the limit within which it may be profitably pursued. There is an immense demand created for wool by the wants of our own population, which now numbers twenty millions, and is increasing at the rate of more than a million and a half annually. We regret however, to say that our farmers have not heretofore been allowed, to the extent they should have been, the supply of this demand. Wool has been brought into our markets from South America which has competed injuriously to the interests of our farmers, with that produced here. Of this fact there can be no doubt, but we do not intend in this article to tell how or why it has been done. It is sufficient for the present, to say, that we hope effectual measures will shortly be taken to remedy the evil, which has given just cause of complaint.

It is an important and fortunate circumstance that the different fabrics for which wool is used, require wool of different qualities. Fine broad-cloths, strong kerseys, and the various kinds of worsted goods, are made from materials produced by sheep of different characteristics. Hence the general market for wool is extended vastly beyond what it would be if only one kind was used. It is fortunate also, that the different kinds of sheep are adapted to different locations and soils. Those producing the finest wool, as the Saxons and the finer class of Merinos, require a moderate climate, dry soil, sweet and nutritious herbage, with shelter from severe weather. For cold, exposed and uncultivated situations, stronger constitutioned and more vigorous breeds are required, such as the Black-faced and Cheviot sheep of Scotland, whose wool, though not calcu-

lated for the finer sorts of fabrics, is converted to many useful purposes. For a more mild climate, and the succulent herbage of rich meadows and highly cultivated grounds, the different heavy English long-wooled sheep, as the Leicester, Cotswold, Lincolnshire, and Romney-Marsh breeds, are adapted.

The increasing demand for various descriptions of wool which has been created in this country by the establishment of manufactories for almost every description of woollen goods, together with the increasing demand for fine mutton in our large markets, has opened the way for an extensive dissemination of various breeds of sheep, and if they are judiciously adapted to soils and locations, good profits may undoubtedly be derived from all.

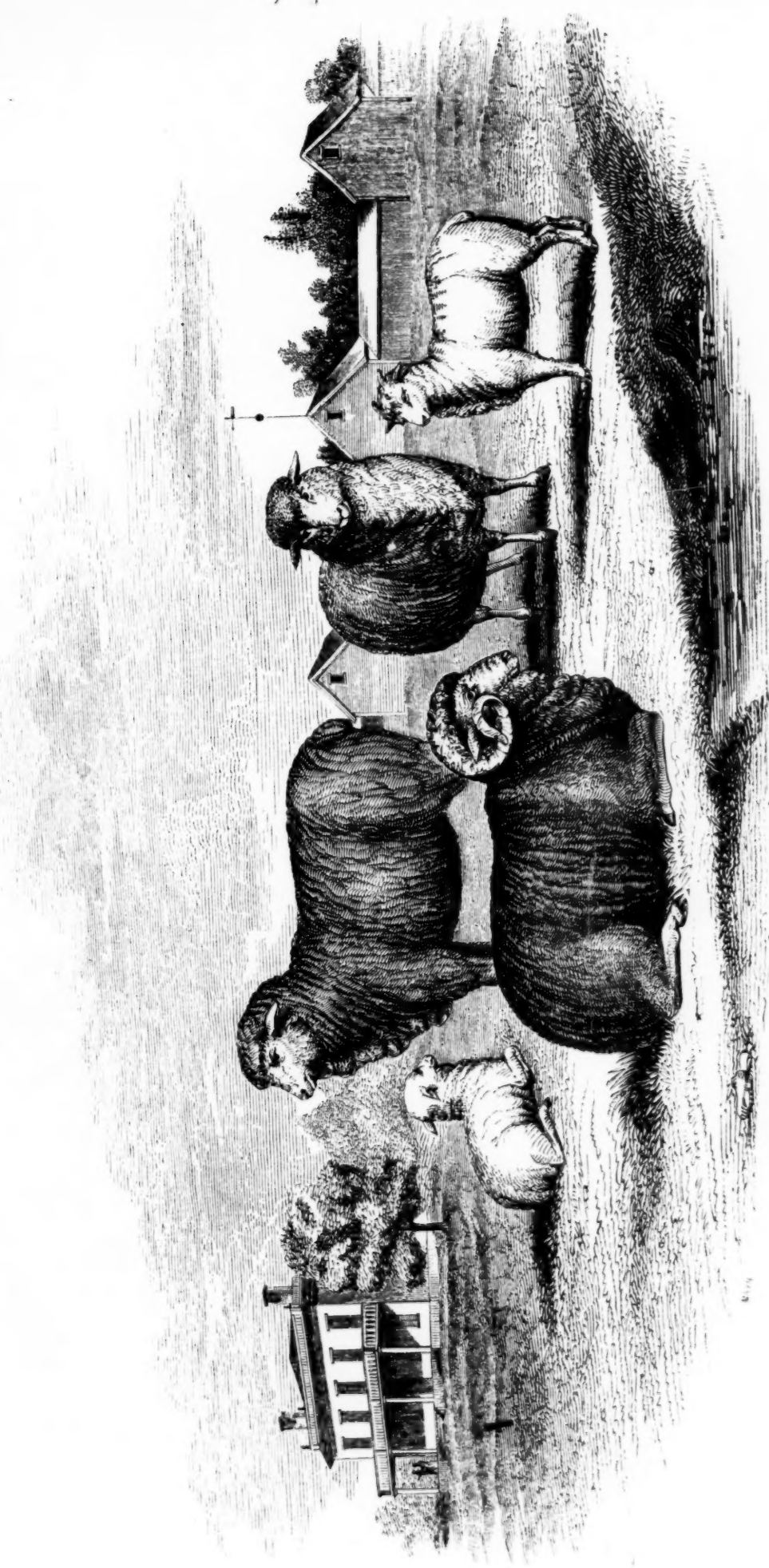
A great quantity of wool is annually consumed in the manufacture of various descriptions of carpets and rugs. Much of this wool might be produced to good advantage in this country, though it is now principally imported. We visited an establishment in Connecticut last summer, the Thompsonville Carpet Factory, where upwards of eight hundred thousand pounds of wool is used yearly in this kind of manufactures. From one of the managers, Mr. THOMPSON, we obtained some interesting items in regard to the business. Most of the wool comes from Smyrna, and costs in the dirt, eleven to twelve cents per pound. It goes through a process of cleansing, at the factory, and when cleansed costs twenty-two to twenty-three cents per pound. Could long-wool of good quality, say Leicester and Cotswold, be obtained in this country, it would be preferred at an advance over that imported, of from three to six cents per pound—or twenty-five to twenty-eight cents per pound. It would even be desirable to procure the whole amount wanted, in this country, if it could be had, to the total exclusion of the foreign wool.

The description of wool for which there is and will be the greatest demand in this country, is that which constitutes the cloth ordinarily worn by the principal part of our population, and as the mass of our citizens do not wear the finest nor the poorest cloth, the demand will chiefly be for wool which will make that of medium quality. The most hardy and heaviest-fleeced sort of Merinos are well adapted to producing wool of this description; and they are also better suited than most varieties to scanty or coarse fare and unsheltered situations. There is some liability, however, that the market for this kind of wool may be over supplied—a liability which the adaptedness of this kind of sheep to common and poor treatment, rather increases, by encouraging their multiplication. A large portion of wool-growers, particularly in the western part of the country, do not provide themselves with suitable pasturage, shelter, and winter food, for keeping the finest-wooled sheep, and are of course under the necessity of adopting such as will stand their management. Hence it is obvious that for the present at least, there will be produced a full proportion of the medium sorts of wool.

It is the opinion of many that the *finest* description of wool may be profitably produced in this country not only for our own wants, but for exportation also. In this kind of wool it is thought we need not fear competition, as we are supposed capable of producing it as cheaply as it can be done in other countries. A degree of care is requisite to produce this article, which precludes the possibility of its being grown where sheep are left unprotected in a wild, uncultivated country. The finest-wooled sheep cannot live long in such a situation; neither can wool which will command the highest price be had where the sheep are forced to range for subsistence among bushes and forests, or over plains covered with pernicious weeds whose burrs and seeds fill and tangle the fleece till it is felted on the animal. On the other hand, such wool can be produced only where due care is bestowed, both in reference to the food and shelter of the sheep, and the protection and preparation of the fleece.

The best locations for *mutton* sheep, are those convenient to large markets; and the prices which good mutton and lamb bring at certain seasons of the year,





MERINO PRIZE SHEEP.

The Property of S. Jewett, Esq. Weybridge, Vermont.

See "The Cultivator," for 1846, page 56.





render them profitable articles to the farmer. The best sheep for these purposes are the South Down, Leicester, and Cotswold. The former give the most delicate mutton, but the latter have the advantage of greater weight of fleece, which, latterly, is of about the same value per pound in market.

One of the most important considerations in reference to sheep-husbandry is the amelioration of the soil. In this respect sheep have an advantage over all other stock, as none improve the land so much. The herbage of sheep-pastures frequently improves for many years with no other manure than that dropped by the sheep—the wild plants dying out, and the cultivated ones, particularly white clover, and several varieties of *poa* or bent grasses coming in. The increased yield of grain crops, particularly wheat, on broken-up sheep pastures, is another evidence of the improvement of the soil. Hence a profitable alternation is grass, depastured by sheep, and grain. The land remaining in pasture three or four years, or as long as circumstances may render expedient, and is then for a year or two put to such kind of grain as may be most profitable. Under this course the crops seldom fail to improve in quantity. Very heavy crops of wheat are often produced on sheep pastures—thus proving the adaptedness of wheat and sheep-husbandry to each other.

Wet lands are thought to be less benefited by sheep than others; but as sheep are known to be unhealthy on such lands, they should not be kept on them.

Some have entertained the strange idea that sheep are injurious to the land—that they “poison out,” as the phrase is, the cultivated plants. It is true that ground may be so over-stocked with sheep that to procure a subsistence they are obliged to gnaw the grass to the very roots. In such cases clover and some other plants may be bitten so closely that they are injured. But in ordinary cases we are perfectly satisfied that the grazing of sheep is beneficial to the land and not injurious to the herbage of pastures. Indeed we are confident that most mowing grounds or meadows would be benefited by being moderately fed every autumn, by sheep. We have seen and experienced abundant proof of this, and can bring the testimony of many of our best farmers to establish the point.

Sandy lands are particularly benefitted by sheep—their tread impressing the soil to just the degree that is desirable. Cattle are often too heavy for the land, but sheep never do injury from this cause. Instances could be cited of soils which were naturally so light that they were blown about by the wind, having become, by a rotation of root crops with clover, pastured by sheep, very productive in various kinds of grain and grass. After the land has been in clover, and the sheep have pastured on it for two seasons, it becomes much more tenacious, and instead of being moved about by the wind, it may be turned over in smooth and sufficiently compact furrows. We would name the farm of Mr. J. McD. McIntyre, on the pine plains, near this city, as a good example of this kind of management with a sandy soil.

It is probable that the principal cause of the improvement of lands by sheep, is the manner in which their manure and urine is distributed—being dropped in small quantities, and usually quite evenly scattered over the ground. The manure, from being finely divided, falls at once around the roots of the grass, and the first rain drives its salts and valuable properties immediately into the earth, where they are made available to the growth of plants. The urine, the most stimulating of all manures, is not, as in the case of horses and neat cattle, dropped in so large quantities as to kill the herbage where it falls, but promotes directly the growth of grass.

#### BARLEY AND FLAX GROWN TOGETHER

AN experiment has been tried the past summer by some gentlemen of this town in raising barley and flax together, and has been attended with success, as appears by the following statements of Col. Stibbins. He pre-

pared an acre of ground for barley, after sowing two bushels on the ground, he then sowed one bushel of flax-seed on the same acre. In the fall he threshed the barley and flax out together with a machine, (it was cut and secured together,) and on cleaning it up he had 30 bushels of barley and 15 bushels of flax-seed. The sale of the crop stands thus:—

Thirty bushels of barley, at 50 cts. per bush.,	\$15.00
Fifteen “ flax-seed, at \$1.00 “	15.00

\$30.00

Col. S. Says, the flax-seed was a clear nett profit, as he thinks the ground produced as much barley as if no flax had been sown, for he had sowed barley on a few acres adjoining this acre which produced only 30 bushels to the acre, and the land equally as good.

Earlville, N. Y., 1846.

G. W. B.

#### CULTURE OF WHEAT.

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##### RUST—SUITABLE MANURES.

L. TUCKER, Esq.—In the January number of the Cultivator, (present vol.) there is a communication by “A Farmer of Tompkins County,” upon *rust on wheat*, upon which I offer a few remarks. In 1838, Mr. Colman, (then Ag. Commissioner of Mass., by order of the Senate, prepared a report on the cultivation of spring wheat. Mr. C., in speaking of the “situation and aspect,” says:—“The aspect of lands, whether high and airy, or low and confined, is of considerable moment. Various theories have been suggested in regard to the origin of rust and mildew in wheat. The prevalent opinion of the French naturalists of the present day, is, that they, like smut, consist of small parasitical plants designed to be nourished upon the wheat plant. Whatever may be the fact, the appearance of these diseases bears as near a relation to certain states of the weather at the time the wheat is maturing its seed, as the courses of the tides to the changes of the moon. These diseases usually occur in the damp, hot, steamy, foggy weather of July. In low and confined situations, wheat is much oftener blighted than in situations which are elevated, and where the air circulates freely.”

Mr. C. forwarded me a copy of his report when published, and I was particularly interested in the above extract. Sometime in the following July, we had for two or three days frequent light showers with bright sunshine between them, and the weather was what we call close and muggy. Soon as the sun appeared between the showers a light fog would be seen arising from the plowed fields. I then several times observed to the persons in my employ, that this would test Mr. C.’s theory of rust or mildew upon wheat. There was within sight three fields of wheat, and on different farms; two of them were sown about the 20th of May, the other just one week later—(sown thus late to escape the ravages of the weevil,) soil similar—previous crop, corn—elevation of the several fields above the river about the same. Within four days after this “spell of weather,” the two first sown fields were brown with rust, and at harvest the straw was brittle, and rusted from top to bottom, the grain light and shrivelled, and not more than half a crop. The third field, sown a week later, was uninjured, and at harvest the straw was bright, and the berry plump and full.

Had this showery weather happened a week or ten days later, my belief is, that the first two pieces would have escaped, and the other would have suffered, for I have witnessed similar results since that time.

It seems to be the critical time when the wheat is in the milk, and such weather occurs.

Your correspondent says, “My (his) belief is that the rust plant or fungus, whatever it may be, always exists on the stalks of the wheat, but its growth is not such as to injure the plant unless warm weather and moisture unite at a particular period during the growth of the plant, and prior to that period it is not visible to the naked eye.

Others entertain a different opinion from the above

In the Canadian Ag. Journal for July, 1845, there is an article on mildew in wheat, in which it is said, "Mildew in wheat has been shown by naturalists to be a minute fungus, whose germs are floating in the atmosphere, and only require for their development, a particular condition the surface of whatever plant they attack. Thus, their growth is, doubtless, favored—perhaps insured—by the exudation of sap from the ruptured vessels of the wheat plant, on which they may alight. This rupture may be caused by a plethoric state of those vessels—erhaps, also, by a deficiency of *silex* in the epidermis of the straw; and this condition is brought on by whatever occasions a great flow of sap, or causes it to continue too long; and the indications of it are a deep green color in the leaves and straw, and the continuance of this dark green color a few inches below the ear after the chaff has begun to turn off. When this symptom appears, a bad case of mildew is inevitable."

It is an important question to farmers whether they have it in their power in any degree to guard against the great losses that frequently occur by the mildew or rust upon their wheat crops.

Your correspondent from Tompkins county, "believes he has discovered a remedy for the rust, plant or no plant. He is preparing to make the experiment next season, and if successful the result will be communicated." I cannot but hope his experiment will be successful—and that he will report the experiment whether it proves so or not. And in the meantime I will offer a few suggestions and facts that may possibly have some bearing upon the subject.

By a chemical analysis of a plant we ascertain what the inorganic, or mineral parts are composed of. The principal part of the ash of wheat straw consists of silica; a ton of wheat straw will yield about 50 lbs. of it. Silica is the substance that gives the hard coating upon the surface, and strength to the straw of grain and the grasses. It is rendered soluble in the soil by the alkali, potash and soda. But there are many other substances, both mineral and organic, required for the perfect crop of wheat. All these substances should be in sufficient quantity, and none in very great excess. On very highly manured soils there is an excess of nitrogenous matter, which is favorable to a luxuriant growth of straw, but it is deficient in strength and it lodges; and in the warm showery weather spoken of the flow of sap is excessive, and from the deficiency of coating upon the surface of the straw, the vessels are ruptured, the sap exudes and presents a favorable place of deposit for the vegetation of the seeds (spores) of fungi, (rust,) which, at certain seasons, are always floating in the atmosphere; the ascent of the sap to the ear is cut off by the ruptured state of the sap vessels; a light and shrivelled seed is the result. Instances of this kind are frequently seen in fields of wheat growing on the sites of dung-heaps, when the other parts of the field are free from it.

From some facts—or cases, that bear strong evidence of being facts, I think that a large amount of soluble silica in the soil, is the surest preventive against a weak straw, and consequent rust or mildew.

Payson Williams, Esq., of Fitchburg, Mass., has on very highly cultivated land, raised over 55 bushels of wheat per acre. Mr. Coleman, in his report says, "Mr. W.'s great crops of wheat were assisted by 50 bushels of wood ashes spread to the acre, and a good crop of wheat seldom fails to be obtained on newly cleared and burnt land. The potash is here in large quantities."

One of the important offices of potash in the soil is to supply in a soluble state to the roots of grain plants, the silica which is so essential to the strength of their stems. Says Prof. Johnston—"This silica exists very frequently in the soil in a state in which it is *insoluble* in pure water, and yet is more or less readily taken up by water containing carbonate of potash, or soda, and as there is every reason to believe that nearly all the silica they contain is actually conveyed into circulation of plants by the agency of potash and soda. It is not unlikely that a portion of the beneficial action of these substances, especially on the grasses, and corn (grain)

crops may be due to the quantity of silica they are the means of conveying into the interior of the growing plants. Silica enters the plant chiefly in the form of silicate of potash or soda."

It is said that grain never lodges or rusts upon the sites of coal hearths, or in the soil that has covered the coal-pit while burning. If that is a fact it is not unreasonable to suppose there is an abundant supply of soluble silica in such soils.

Mr. Pell has succeeded in raising very large crops of wheat on highly manured soils, by applying a large quantity of ground charcoal to the soil at the time of sowing the wheat. Perhaps too, that may have had the effect of giving strength to the straw.

In the Farmer's Monthly Visitor, for Nov., 1845, there is an account copied from the Genesee Farmer, detailing some experiments by Mr Haywood, of the city of Buffalo, upon the application of charcoal to the wheat crop. When there was applied 50 bushels of ground charcoal, the yield was 25 to 35 bushels of wheat per acre; same kind of soil without the charcoal produced from three to five bushels, only, per acre, and badly rusted. The experiments were upon a large scale, extending to over 90 acres. It is also stated in the same article that where twenty bushels of *unleached* ashes had been scattered over an acre at the time of seeding, it has evidently increased the crop some ten or twelve bushels per acre.

Some writers of note in the agricultural world, doubt the utility of the use of lime in agriculture, but notwithstanding, *some farmers*, in the middle and southern states, as well as in many parts of Europe, persevere in the use of it. By the use of lime and clover much of the exhausted land in the southern states have been reclaimed, and now produce good crops of wheat. When a crop of clover is turned under upon land that has had a dressing of lime, one of the consequences would be to produce an increased amount of soluble silica in the soil. The decomposition of the clover would produce carbonic acid, that in turn would when aided by the moisture in the soil decompose the carbonate of lime, and its alkali would act upon the insoluble silica in the soil and render it available to the succeeding crop of wheat; and Prof. Johnston states, that it is said wheat is never laid (lodged) that follows a clover lay. If that is a fact, we must suppose it has a stiff straw, and that that stiffness is due to the soluble *silex* in the soil.

I presume, Mr. Editor, you have the London Gardiner's Chronicle. If so, if you will turn to that of Aug. 9th, 1845, you will find a very interesting article by Prof. Johnston on the use of silicate of soda as a manure for the wheat crop—or rather its application to the soil for the purpose of giving more strength to the straw of wheat. Some English agricultural writers have advanced the idea of the necessity of the application of the silicate of soda in connection with guano, or dissolved bones, for the purpose of giving to the crop soluble silica.

Prof. J. analyzed four different soils in his laboratory for the purpose of ascertaining the amount of soluble silica in them. The quantity he found in the soil that contained the least, amounted to 6,700 lbs. upon the acre, taking the soil twelve inches deep. Allowing 3,000 lbs. of straw to the acre, the amount of silica carried off by a crop of straw, amounts to 75 lbs. per acre; ergo, the soluble silica alone in the soil, will supply silica to the crops for 900 years in succession. And the soil that contained the most—four times as much—would supply it for 3,600 crops. From the above analysis he comes to the conclusion that it is not necessary to apply a soluble silicate to the soil. I do not doubt the accuracy of his analysis, but he is a strong advocate for the application of ashes and lime to the soil, and one of the effects of their application is to increase the quantity of soluble *silex*.

As observed by Mr. Colman, a good crop of wheat seldom fails to be obtained on newly cleared and burnt land. Where the forest growth has been burned, and all the ashes left upon the ground, the amount of soluble silica must, I think, be many times greater in the burnt soil, than in the soils he analyzed.



Dr. Dana, in his Muck Manual, tells us, the soil of an acre of land six inches deep, will afford 6,726 pounds of lime, and 73,311 pounds of potash—lime enough for an annual crop of rye for 7,400 years, and potash enough for the straw of annual crops of wheat for 3,000 years. Now this may be all correct; but farmers think they find it for their interest in applying both ashes and lime to their soils. In the year 1844, I prepared a large quantity of soluble silica in a compost heap, for the purpose of testing its use. When I commenced writing this article I intended to have given the process and result; but the unconscionable length of this, must be my apology for resting the question here for the present.

Yours, &amp;c.,

L. B.

Warner, N. H., Jan. 8, 1846.

## CULTURE OF POTATOES.

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L. TUCKER, Esq.—In the last number of the Cultivator, you expressed a wish that I should give a particular account of the process of culture by which I have succeeded in raising the unusually large crops of potatoes which I mentioned to you in a former communication. There is nothing in my plan either difficult or original, and I am only surprised that greater crops are not generally raised; knowing as I do from experience, that to produce 800 bushels per acre, is, in this vicinity, an easy and simple process; provided the season is moderately favorable. For potatoes I prefer a soil composed of sand and clay in about equal proportions, resting upon a clay subsoil. On such a piece of land which has been in grass a few years, I haul out in February or March six four horse wagon loads of good stable manure to the acre, (about 80 bushels to the load.) The manure is immediately spread and turned under by inverting the sod to the depth of ten inches at least. About the last of April spread on the inverted sod, about three additional wagon loads of manure to the acre. Harrow the ground well lengthwise with the furrow. Cross plow to the depth of four or five inches, and harrow again. By this time the last manure applied is well mixed with the soil, and the land is in a fine state of tilth. The first of May, mark out the ground in rows three feet apart each way, with a large two horse plow, to run as deep as the first plowing. A good plan is also to let the bull-tongue plow follow in the furrows after the bar-share plow. This breaks up and loosens the subsoil under the rows. A subsoil plow would I suppose do the work better, but we have none, and the bull-tongue answers very well, as it loosens the subsoil and does not throw it up. We plant the "long reds," using large potatoes for seed, cut into pieces with about four eyes each, and put four pieces in a hill; which takes about twenty bushels of seed to the acre. The seed is thus planted deep, on a loose mellow bed, and the ground after the planting is completed has a perfectly level appearance. The after culture is quite easy and simple. As soon as the plants are two inches above the ground, plow with the bull-tongue as near to the hills as possible; if most of the plants are covered up, so much the better. In two or three weeks plow again both ways; by this cross plowing the earth is well loosened and thrown up around the hills, in a sort of hollow square, a little depressed in the centre, presenting a broad surface to receive the rains, and convey the moisture to the roots of the plants. The hoe is used to destroy such weeds as have escaped the plow, and to give the hills the proper form. Care is taken not to make those conical shaped hills, which used to be the fashion, so admirably calculated to carry off all moisture from the roots of the plants. I have found the long red to be the most productive of any kind of potatoes I have ever cultivated. I tried the Rohans two years, but found them to yield at least 30 per cent less than the long reds. I have never tried planting in drills, and prefer hills on account of cross plowing which I consider very important. I know that 800 bushels per acre can be raised by my plan, for I have done it three years in succession in 1842, '3 and '4. In the year 1844, the

rot made its appearance in my potatoes, and I supposed that about 200 bushels were destroyed. Last spring, in addition to the other manure, I applied about 40 bushels of wood ashes and 4 bushels of refuse salt per acre to my potatoe ground. The ashes were spread with the last application of manure, and the salt sown broad cast after planting the seed. I think that the ashes and salt had some tendency to prevent the disease, as it was less destructive to my crop than it had been 1844, while the crops of many of my neighbors suffered much more than in any previous year.

Respectfully, yours, &amp;c.

Wm. McCoy.

Franklin, Pendleton co. Va., January 10, 1846.

## THE POTATOE DISEASE.

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L. TUCKER, Esq.—Facts being the very foundation of science, it has struck me that the following might assist some inquirer into the causes of the potatoe disease.

In 1843, the disease among the potatoes showed itself in this country. That year, in many parts of the country, the potatoes rotted in their bins, and it was found necessary to remove them. In 1844 the disease was more prevalent, while in 1845 it was much less extensive. In my own case, very little of the disease appeared among the potatoes raised, in either year. Still, there was a little of it, among the pink eyes, in particular. Having observed that potatoe-balls were very scarce in my own fields, and indeed in all this region, and being confident that the potatoes now raised in this country are much inferior to those raised five and thirty years since, I sent to England for seed. A friend was kind enough to obtain for me twenty-four hampers of fine Lancashire potatoes, last spring, which reached me just in time for planting. I had them placed in new ground, on the side of a field in which were planted pink eyes, trout and orange potatoes. The yield of all the potatoes was light, on account of the drouth, but the Lancashire did as well as could be expected. Four and twenty bushels of English potatoes were put away, for seed, in a cellar, under a hay mow, where the temperature is hardly above freezing; as good a place for the preservation of vegetables as could be selected. A quantity of the trout and orange potatoes were put in another corner of the same cellar. Fearful that the weather was getting too severe for my seed potatoes, as the mow grew thinner, I ordered them to be removed, last week, to another cellar. On opening the straw that covered the heap, more than half of the potatoes were found to be far gone, with the disease. As the rot has appeared in none of the other sorts that were grown in the same field, including pink eyes, I am left to infer that the English potatoes were infected, while the others were not.

I merely state the fact. The disease existing so extensively last year in England, may possibly have some connection with this loss; though to connect the circumstances it is necessary to believe that two seasons are required to develop the rot.

I will only add, that I had brought into my house some of the varieties that were grown, the English excepted, and I cannot find that a single potatoe has been affected. I know of no difference in the culture or land, that should have produced this result. No manure was carted on any part of the field, though plaster was used throughout. As piles of logs and stumps had recently been burned on the land, it is possible these ashes may have reached to these English potatoes, though not more so than to the others, as the log heaps extended over all parts of the field. I do not think, moreover, that the vines ever looked thrifty.

Yours, &amp;c.

J. FENNIMORE COOPER.

P. S.—It may be well to say that the English potatoes, diseased as they are, have been fed to store hogs, with perfect impunity. What is left of them seems to be as nourishing as the sound potatoe. They are affected with the black, cholera-looking disease, and appear to moulder away, rather than turn into a semi-liquid

putrid substance, as was the case with some grown in my garden, in 1844.

Hull, Cooperstown, Jan. 6, 1846.



BURRALLS CORN-SHELLER AND SEPARATOR.—(Fig. 16.)

WE saw this machine in operation for a few minutes, the other day, and formed a favorable opinion of it; but as we have not had a sufficient opportunity of examining it, we offer the following communication descriptive of its operation:—

When will wonders cease! Do not stare, gentle readers, for it is even so. Mr. T. D. Burrall, of Geneva, has made an improvement in the simple implement of a corn-sheller, which "takes the rag off" of all its predecessors. It cannot be beat. Why, just look at the above cut. See how simple it is—all iron—strong and substantial, and what is more, it cannot be easily put out of order. Durable too—last a man's life time. Why, there is nothing of it—a mere pocket edition. Still its operation is wonderful; it strips the kernel clean from the cob, without breaking either the corn or the cob, and what is more, it not only separates the corn from the cob, but the cob from the corn, and deposits the corn at the bottom in a half-bushel, fit for market or the mill, and the cob through a "knot hole" or orifice on the back side, near the top, thereby saving the trouble of "cleaning up," as with other machines. Take it in your kitchen and it is fine fun for the boys to shell from twenty to thirty bushels of corn in an evening. The "gude" wife will have no reason to complain of dirt or a "muss" on the floor.

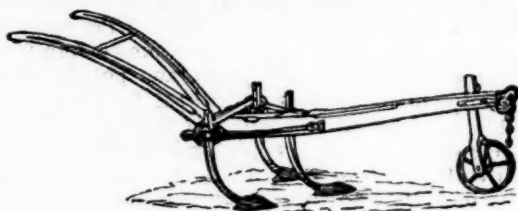
To be serious, Mr. Burrall has really presented us with a most efficient and useful machine, leaving the shovel, frying-pan handle, and all other machines far in the back ground. The principle of the sheller is not new, but the improvement consists in the case or shell which encloses the operating parts, and the complete separation of the corn from the cob. It requires but little power, and is capable of shelling from 10 to 12 bushels per hour.

Arrangements have been made for their extensive manufacture in this city, and a few are now on sale at the Agricultural Warehouse of Messrs. E. Comstock & Co., No. 23 Dean-st. Retail price, \$10.

C. N. BEMENT.

Bement's Am. Hotel, Albany, Jan., 1846.

**CURE FOR BEE-STINGS, &c.**—Liquid ammonia is found to neutralize the poison of bee-stings, and the bites of poisonous insects, and to afford more immediate and effectual relief than any other remedy.



HORSE-HOE.—(Fig. 17.)

THE above is a cut of a good horse-hoe or cultivator for working among corn, potatoes, and turneps in their early stages, and we should suppose would be excellent for tobacco and cotton. The legs are wrought iron, and the feet are laid with steel. Cultivators made of cast iron answer very well for very light soils, but are poorly adapted to those which require loosening and pulverizing. A tool like that above delineated, if well constructed may be made to penetrate the soil as deeply as is required by any crop, and it will at the same time so cut up the weeds as to effectually destroy them.

#### CONNECTICUT IRON WORKS

THE valley of the Housatonic abounds in iron ore, which gives employment to many furnaces for smelting it, and for various other establishments for the manufacture of different descriptions of iron articles. It was at Salisbury in Connecticut, we believe, that the first iron was made in this country. The first American cannon were also made here in the time of the Revolution; and ever since that time the town has been noted for its iron manufacture. The iron here produced is of a quality superior, for many purposes, to that made in any other part of the country.

At this time there are in Salisbury four blast furnaces and four forges. A brief description of one of these, which the writer had an opportunity of visiting not long since, may furnish some idea of the immense value of the iron business in this vicinity.

The iron works of OLIVER AMES & Co., are situated in Falls Village, in Salisbury. They were erected and are carried on under the supervision of Mr. H. AMES, a son of the senior partner. These works cost \$80,000, and are devoted mostly to making heavy articles of wrought or hammered iron. The original material used is pig iron, of which twelve hundred tons are used annually,—producing eight hundred tons after it is manufactured, and receiving from the process an increased value of eight cents per pound from the pig. The business is chiefly making tire for locomotive wheels, heavy shafts for steam-boats, and filling government contracts for various articles, such as chain cables, irons for field carriages, &c. Fifty men are constantly employed, and from three hundred to five hundred dollars worth of work are turned off daily.

The tires of the locomotive wheels, weigh from four hundred to eight hundred pounds each, and a ton of iron is used daily for this purpose. Steam-boat shafts are frequently made weighing seven thousand pounds each.

Ore is worth two and a half dollars per ton at the bed, and three to three and a half dollars delivered at the furnaces. Pig iron is worth forty to fifty dollars per ton. Messrs. Ames use annually two thousand cords of wood, worth two dollars per cord, forty thousand bushels charcoal, worth six cents per bushel, and seven hundred tons bituminous and anthracite coal, worth ten dollars per ton. Their men are paid from one dollar to three dollars per day.

At Furnace village, which is also in Salisbury, we called at Mr. ALEX. H. HOLLEY'S cutlery manufactory, but not finding Mr. H. at home, we were unable to learn many particulars concerning the establishment. It was the ancestors of Mr. Holley who made at this place the cannon before alluded to, in the Revolution.



## SAVING MANURE.

WE witnessed on the farm of Mr. JONAS STEIGER, Enfield Ct., a few months since, a good plan of managing manure. Large cisterns or vats were constructed under the stables where the cattle and horses were kept, into which the urine was conducted. The manure, intermixed with straw, litter, turf, &c., was piled up in square heaps over the cisterns, and the urine pumped up, and by means of spouts turned equally over the manure. All the liquid which soaked from the heaps, was again conducted into the cisterns. The liquid was turned on the manure in just such quantity as to keep up the degree of moisture necessary to gradual decomposition—violent heat being never allowed, as it would dissipate some of the valuable parts of the manure. If there is too little moisture, the heat rises too high, and more liquid is pumped on to check it.

It strikes us that this is a good mode of making compost. It may not, perhaps, be so readily carried on in cold freezing weather, but during such weather, it should be remembered, the manure is not subject to waste by fermentation, and it may be piled for composting in the spring. The cisterns, however, should be of sufficient capacity to hold all the urine which may be made during the cold weather.

Mr. STEIGER is from Switzerland, and had only been on the farm, at the time we called on him, about six months. His residence in Switzerland was not far from Hofwyl, and he was formerly acquainted with Fellenberg and with the management of his celebrated agricultural school. It is not unlikely that the mode of managing manures above mentioned, may have been derived from Fellenberg's Institution, as according to a letter of our correspondent, Mr. HORSFORD, (which will be given in our next,) it agrees with the practice there followed.

We were gratified to observe that Mr. S. had commenced on his farm several valuable improvements; though from the short time the place had been in his possession, and the exhausted and worn down condition it was in at the time he purchased it, it could not be expected that everything would at once be set right.

It is not improper to remark that Mr. S. holds the patent, for the United States, of a machine invented about two years since in France, for knitting cloths and various garments. It appears to be an article of great value. He has now twenty-four machines, worked by water-power in operation, and has others in progress. A machine will make from thirty to sixty yards per day. The materials used are cotton, worsted, common woolen yarn, and silk, of all various degrees of fineness and quality. Some of the articles produced are very beautiful, and they are said to be generally superior in cheapness and durability to woven goods.

## TRANSACTIONS OF THE ESSEX (MASS.) AG. SOCIETY.

WE tender our thanks to JOHN W. PROCTOR, Esq. for a pamphlet of 125 pages containing the doings of the society for the last year. This is one of the oldest and most useful agricultural societies in the country, and is said to have been the first in Massachusetts to publish in detail its Transactions. We are informed in a note to Mr. STONE's address, contained in the pamphlet before us, that the Hon. TIMOTHY PICKERING was the presiding officer of this society for ten successive years, and that J. W. PROCTOR, the present secretary, has held that office for twenty years.

Mr. STONE's address contains much that is interesting, but we have room for but a brief notice of it. It particularly encourages the introduction of the study of agriculture into our schools. "I wish," says Mr. S., "to see the subject of agriculture hold a place in our school-books as prominent, at least, as that of war. If the spirit of the latter is to be fostered where young ideas bud and often fruit, by the charms of poetry, it cannot be asking too much that the praises of peaceful agriculture be

said in sober prose. The relation which the latter holds to the former, in some of our school-books, affords little hope for an improved public sentiment while they continue in popular use."

Mr. STONE observes that "there is frequent complaint among farmers that their sons early imbibe a distaste for agriculture—that as soon as they are of an age to be useful, they seek employment and leave them to manage the homestead under the disadvantage of hired assistance." Mr. S. thinks this evil would be in a great measure remedied, if the elements of agriculture were made a branch of study in our common schools. "Possibly," he continues, "some may consider this a useless appendage to the studies now pursued—they may think that a boy can learn enough of agriculture on the farm, without the study of books. But if I have rightly estimated the influence of books or the choice of pursuits, then this study, so far from being useless, will be found an important auxiliary to an interest from which other interests are annually abstracting much of the best talent."

## INDIAN CORN.

Mr. TUCKER—Of all the crops which are raised in the middle states of the union, none are of so much importance to the farmer as the corn plant, not only for its valuable grain, but its leaves, husks, and stalks, for fodder and manure; no plant which he cultivates being so well adapted to hold the valuable parts of the feces and urine of the barn-yard from the pithy structure of its interior.

Corn, for success, requires a loose and rich soil, by which a rapid growth is obtained, and is thus enabled to overcome the changes incident to spring and its two ordinary and most powerful enemies, the wire-worm and the grub. The ravages of the former, are as we all know, below the surface, appear to be proportioned to the hardness and probable poverty of the soil, preying on the main root, effectually preventing all production of the grain, if not destroying the plant. The grub, on the contrary, cuts off the stem near the surface; its range of destruction more general as regards soil, but evidently feeding from preference upon the more feeble plants, and therefore by complying with the conditions requisite for a vigorous growth, its action is but feeble. So also when corn is planted upon a sod recently turned under, the grub finding still its accustomed food.

There is also another observation which I wish to have recorded, being important to prove, if true, or to set aside, if false. It is the belief that the tendency of the corn plant is to produce a greater yield of grain in northern climates, and less grain and more leaf and stalk in southern ones; no state in the union producing such prodigious crops, per acre, as New-York, for example. Should this be the fact, it will lead the farmers here, and further south, not to force the plant after it has escaped its early enemies, but to reserve its strength and that of the soil, to near the time of setting; merely giving a healthy growth by moderate, and not excessive cultivation, previous to that important state of its being.

For the first years of my farming the manure was spread in the spring, upon a sod, for corn, finishing in time to plow for planting. This plan was changed, hauling out and spreading it the preceding autumn, plowing as before. This latter method appeared to be preferable, giving not only a quicker growth to the young plants, but evidently a better stand. I also noticed that the effect of the manure from remaining upon the surface for so long a period comparatively, was to make the soil loose or mellow, and to render the wire-worm and grub no longer causes of uneasiness.

The good effect of covering the ground in the autumn for the corn crop, were fully confirmed on an adjoining farm, and the knowledge thus obtained, led to the plan which at present I pursue. My neighbor commenced by hauling out the manure which was left after preparing his wheat ground, which sufficed for only about one third of it. He then proceeded to cover the

remainder with straw, but did not finish more than one-half of the part which was left, leaving, therefore, a third part uncovered. The whole was plowed in the spring in time for planting. It may be satisfactory to state that the field was perfectly level, and the soil of uniform quality throughout its extent, but thin.

From the time the corn appeared above the surface to its perfecting, a marked difference was manifest between the two parts which had been covered and the part left uncovered, having examined the corn at the beginning of the growth of the corn, and at its completion. The parts which had been covered with manure and straw, stood well, being unaffected by worms. The color was very good and produced a fair crop; nor could any difference be perceived between them, as the owner informed me, in the quantity or quality of the grain when husked, so far as the eye could determine.

On the part which had been left without manure or straw, the wire-worm was so destructive, as to require more than once replanting. The color indicated less vigor, and the yield in grain inferior in every respect.

No experiment could be more decisive or important as regards the corn-plant than the one related. It established two important facts. The great advantage of covering the ground in the fall of the year for corn; the other, that no difference could be perceived in the crop between the part covered with straw, and the part with manure; consequently that straw could be substituted for manure in its culture.

It has been an object of no small importance with me in farming, to attain to certainty, quantity with goodness of crops, with the least expense of labor, and to obtain from the farm all the food or manure required for the various crops to be grown. That the latter object was possible I did not doubt, but in no way could I accomplish it so long as manure was required for both corn and wheat. Had grazing been combined with tillage, there would have been a sufficiency for both these crops, but the farm being wholly arable, there was only enough for one of them.

From being engaged in another pursuit which occupied me some years, and other causes diverting my attention from farming, it is only within eighteen months that I have been able to make an application of straw. My experience therefore is too limited to satisfy those who require comparative statistics, but sufficiently so to induce me to believe that I shall attain my object.

The field which was planted with corn last year, was a timothy sod, of about three years old. It was covered with straw the preceding fall. The grass at the time of breaking it up, which was just before planting, looked better than it had at any preceding spring; better than I have known old sods when manured. The corn crop equalled my expectations of it.

The same autumn, I also covered four acres of mixed grasses for pasture, leaving about half an acre uncovered by the side of it, which had been in potatoes and highly manured. The grass next year upon the covered part was the best, and better withstood the various spells of dry weather which prevailed last year.

LARDNER VANUXEM.

Bristol, Pa., Jan. 6, 1846.

#### BUCKWHEAT WITHOUT GRIT.

.....

DID any person, who eats buckwheat cakes, ever have the good fortune to get any containing not a particle of grit? A method not generally known, was lately stated to us by a practical farmer, who says that buckwheat raised in this way is entirely free from the difficulty.

The buckwheat is sown at the usual time, but before harrowing, a bushel of rye is sown with it to the acre; they both come up together, and the buckwheat, being much the most rapid in growth, soon obtains the ascendancy, the rye only forming a smooth green carpet beneath, which completely prevents the dashing of the grit of the soil by rain upon the buckwheat when it is cut, and otherwise keeps it clean. After the crop of buckwheat is removed, the rye obtains sufficient growth

before winter, and the next season affords a good crop of itself. Thus, the buckwheat is protected, and two crops obtained from a single seeding.

#### PLANTING TREES BY THE ROAD-SIDE.

.....

NOTHING adds more to the beauty and interest of a country, than shade or fruit-trees by the sides of the roads. Of forest trees, the most proper for this purpose are elm, white ash, hickory, black walnut, and rock or sugar maple. A favorable time for transplanting, is as soon as the frost is out of the ground; it should by all means be done before the foliage puts out. Those trees which have grown in a dense forest, will not usually flourish very well on being transferred to the open air. It is better, therefore, to procure for transplanting such as have grown as much as possible in an open exposure. Decidedly the best are those raised in nurseries from seed, or which have been taken from the woods or fields soon after they have vegetated.

It is sometimes objected that trees prevent the roads from drying by shading them too much. On roads which run east and west, there is some liability of this taking place; but on those the course of which is nearly north and south, the sun is not as much obstructed. If roads were, however, laid out sufficiently wide, say four rods, and the trees were not planted at less distances than two rods, we think little or no injury would be experienced from shade.

When in Vermont last season, we noticed in many instances, that the roads were bordered by rows of the sugar maple, and that the sap of the trees was used for making sugar. Some of them were the handsomest trees, and the most productive in sugar of any we have seen. Being allowed plenty of room, they throw out numerous branches, and the tops generally assume a regular conical form, while from the abundance of leaves the sap is well elaborated, and the saccharine principle largely developed.

The white ash and the black walnut, grown in open situations make valuable wood or timber for various purposes. "Pasture ash," as it is called, is nearly as valuable as white oak for any purpose, and for some purposes, such as handles for pitch forks, hoes, &c., it is the best of all wood. No better mode of raising this valuable timber could be devised, than to plant the young trees beside the highways. They will grow readily in nearly all situations, are ornamental in their appearance, and are not liable to be injured by the attacks of insects. All trees when first transplanted, should be protected by a strong pen of boards and stakes, from the attempts of cattle and other animals, to rub against them.

#### WORMS IN THE BOWELS OF ANIMALS.

.....

THE origin of some forms of animal life, particularly of some parasites, has at various times occasioned much discussion. Though it is by some strenuously denied that life in any form is ever produced spontaneously, there are certainly cases where we can assign no other cause. Parasitic animals are found springing into life under circumstances which seem to preclude the possibility of their having been produced by the ordinary laws of generation. Thus we find the fluke in the liver and biliary ducts of sheep, affected with the *rot*, the hydatid in the brain, and, stranger yet, insects of various species in the bowels of animals while in the foetal state.

An article on "bots," in the *Prairie Farmer*, by John Maddock, records a striking instance of this kind. He states that John Lee, of Decatur, Macon co., Ill., "had a mare with foal that died before foaling; the foal had no hair on it; he cut it open and found bots in it." We presume there must have been some mistake about the insects found being "bots," that is the larva of the *æstrus equis*, as the economy of that insect is well known, but we can hardly doubt that some insect was found, and whatever species it might have been, their existence is none the more easily accounted for.



## CONDENSED CORRESPONDENCE.

## PRODUCT OF A HALF ACRE.

H. W. CROSBY, La Fayette College Pa., states that he gathered last year from half an acre, 212 bushels sugar beets, 92 bushels carrots, 20 bushels turneps, and 450 merchantable cabbages. The ground had no manure last year, but the year before it had a good dressing. It was plowed twice, very deep, (about 13 inches,) then thrown into ridges eighteen inches apart, the ridges raked and the seed sown. The plants were thinned to six inches in the row. The turneps were only sown where the carrots missed.

## LIEBIG'S THEORY OF ARTIFICIAL MANURES.

We make the following extracts from a letter on this subject signed DAIRYMAN FARMER:

"Although I think the communication written by Liebig, published in your December number, is worth the full price of a year's subscription, yet I think some of his conclusions and assertions have a tendency to mislead new beginners and give them to expect more certainty in agricultural operations than facts will warrant. I will only notice a couple of instances. First, he says—"The system of draining, which of late has been so extensively followed in England, brings the land into the state of a great filter, through which the soluble alkalies are drawn off, in consequence of the percolation of rain; and it must, therefore, become more deficient in its soluble efficacious elements." [See Cultivator for Dec., 1844, p. 364.] Can it be that injury has resulted to the lands from this cause? I think not.

"Again he says, (same page) if chemists succeed (as he has no doubt they will,) 'in combining the efficacious elements of manure in such a way as that they will not be washed away—their efficacy will be doubled; if in this manner the injurious consequences of the present system of draining be removed, agriculture will be based upon as certain principles as well arranged manufactories.'

"Now every farmer of experience knows that the results of his operations depend in a great degree on the season, over which he has no control. He certainly cannot prepare his land against wet and drouth, heat and cold at the same time. We lose at least one crop in four on account of unfavorable weather."

## DISEASE IN COWS.

A "DAIRYMAN FARMER" writes that in the spring and summer of 1840, his cows were attacked with a swelling about the head and jaws. "The first" (says he) "that I observed of it, one of the cows refused her food, and on examining her, I found that she was so swollen about the mouth and eyes that she could scarcely see. I had her bled immediately, and in fifteen minutes she began to feed. The swelling soon went down, and the next day she appeared as well as ever. In the course of the summer, five or six others were taken in the same way, though we generally discovered it before they were as bad as the first. They were all, however, more or less swollen, and some of their bags were affected. Copious bleeding invariably cured them. I have sometimes given four or five quarts of thorough-wort (bone-set) tea, one or two quarts at a time."

## PROFITS OF HENS

MR. JAMES L. COX, Zanesville, Ohio, gives us the results of an experiment he made for the purpose of ascertaining whether hens would be profitable. He says: "In Dec. and Jan. last, (1844, '45,) I sent out to a man who has charge of our coal-banks and farm, 24 hens and one cock. One would think the number of hens too large, but the eggs hatch very well—say 110 eggs set, hatched 75 chickens. This was previous to July 1st, 1845; and besides the eggs set, the hens laid in the same time, 1096 others. The grain eaten in that time amounted to \$4.25. This was for six months. I intended to have kept the account for a year, but left

home on the 4th of July, and did not return till September. I thought the produce pretty well for the time. I had them in a warm room with a stove in the room adjoining, which I think had a good effect, for after they commenced laying, they did not stop, let the weather be what it might."

## CROPS OF 1845 IN SOUTH CAROLINA.

EXTRACT from a letter received from W. S. GIBBES, of Chestnut Grove, S. C., dated Jan. 1st, last:—"The past has been a deplorable year; the loss of crops and the suffering of the poorer classes, will long be remembered. The drouth injured us greatly, but the chinch bug more—injured our wheat, eat up our oats and destroyed fields of corn. I do not make more than one-fifth of a corn-crop, and not more cotton than enough to buy the corn needed—and yet I make a better crop than many of my neighbors. Some did not make a bushel of corn, or a pound of cotton. Many are killing off their hogs from the woods, having no corn to fatten them with; and their stock, because they cannot carry them through the winter, and cannot sell them in a country where there is no provender to be had. Thus you see, it is indeed hard times with us here. But this is a new year, and we hope for better things."

## TO KILL PEPPERMINT.

In relation to an inquiry for a mode of exterminating this plant Mr. GEORGE HAMPTON, of Perth Amboy, N. J., writes as follows:—"A farm on which I resided some eight years since, had a small patch overrun with peppermint and spearmint. I converted it into a sheep-pasture for two years, and when I left the farm, which was nearly three years ago, there was scarcely a plant of it to be seen. I have no doubt that by pasturing it with sheep for five or six successive years, it may be entirely eradicated."

## STUDY OF AGRICULTURE IN SCHOOLS.

MR. PAR'S BARBER, of Homer, writes us as follows: "The effort of Mr. Woolworth, the principal of our Academy, to introduce the study of agricultural chemistry and geology, has met with great success. He has a fine class of young men—from 25 to 30—farmer's sons, from this and the adjoining counties, and I can assure you, they are deeply interested. He also gives a separate lecture to the farmers every Friday evening, at which fifty or seventy-five are present, and are much benefited." We are pleased to receive this information, and regard it as an indication that the plan of introducing the study of agriculture into schools, is destined to succeed.

## EARLY POTATOES.

MR. E. T. CLARK, Providence, R. I., to whom we sent some of Mr. HALL'S early June potatoes, writes in reference to them as follows:—"The potatoes I had of you turned out remarkably well. A sample sent in to the exhibition of the R. I. Horticultural Society, were boiled and pronounced *first rate*. I have had more calls for them than I could supply, at a dollar a bushel. I planted them on the first of May, and in just sixty days had them on the table of the size of small hen's eggs."

## EFFECTS OF LIME.

Rev. J. N. CANDEE, New Albany, Ia., relates the following:—"In a field in which I planted corn last spring, a lime-heap, (a heap of logs on which a quantity of lime-stone had been placed,) had been burnt more than twenty years ago. The gentleman who was on the place when I purchased it, being here during the summer, remarked that he presumed that he could show me by the corn, the very spot where such a log-heap had been burnt. I had before noticed an uncommon strength of stalk on the spot, but was not aware of the cause, until he took me to the place." We would suggest this query in regard to the above—Was the extra growth of corn owing to the lime or the ashes of the logs burned with the lime? We have seen the effects

of charcoal-pits in the extra growth of grain and grass on various soils, for more than twenty years after they were burnt.

#### ONEIDA COUNTY AG. SOCIETY.

THIS Society held its annual meeting at South Trenton, on the 8th of Jan. Rev. Dolphus Skinner, of Deerfield, was elected President; Benj. N. Huntington, of Rome, Rec. Secretary; Jno. Rixley Burgett, Westmoreland, Cor. Secretary; William Bristol, of Utica, Treasurer. Ten Vice-Presidents and five Managers were appointed, among whom we notice the names of many excellent farmers and efficient members of the society, who, with the gentlemen above named, will take good care of the interests of the society the ensuing year.

#### OSWEGO COUNTY AG. SOCIETY.

M. R. H. L. R. SANFORD writes from Volney, that "The annual meeting of the Oswego Co. Ag. Society was held Jan. 7, when the following officers were chosen for the ensuing year. The next fair is to be held at Fulton, on the last Tuesday and Wednesday of Sept. next."

B. E. Bowen, President, Mexico;  
G. F. Falley, Fulton, } V. Pres'ts.  
Samuel Foot, Phoenix, }  
R. K. Sanford, Cor. Sec'., Fulton;  
G. Salmon, Rec. Sec'y;  
I. I. Wolcott, Treasurer;  
Wm. Ingalls,  
H. L. R. Sanford, } Executive Committee.  
D. R. Case.

#### HOUSES OF LIME, SAND AND GRAVEL.

T. WINCH, Cleveland, O., gives us the following account of building houses of these materials.—"I read in Ellsworth's Report of last winter, the manner of building cheap houses of unburnt brick; but I think they have an improvement in Wisconsin over all others. The material consists of gravel and lime—one-eighth part lime, and the balance of coarse sand and any kind of gravel or small stones, mixed so to make a mortar that will "set" so hard as to stand well. I saw at Prairie du Lac, Rock Co., two buildings of this material—one a blacksmith's shop, the other a seminary of two stories. Both appeared to be perfectly substantial. The proprietor, Mr. Goodrich, took a hammer in the shop to show me how strong the mortar was, and actually broke a stone that protruded from the wall before he loosened it. They use clamps to build with, and deposit in them six inches of mortar each day, which gives it time to dry, and so on until the wall is finished."

#### PROFITS OF GOOD HUSBANDRY.

A. VAN BERGEN, Esq., of Coxsackie, has given us the following memorandum of the last year's product and profit of three and a half acres of land:—200 bushels shelled corn—630 bushels ruta-baga—15 tons corn-stalks. Charging all the labor at the highest rate, and crediting the produce at a fair market value, the nett profit afforded by the three and a half acres, was \$67.49. After the crops were taken off, the land was sown in wheat.

#### POUDRETTE.

BENJAMIN HICKS, of Great Neck, Queens co., L. I., states that in the year 1843, he manured his potatoes with street manure obtained from the city of New York. The crop was good. The next year, 1844, he planted the same ground with potatoes, without any manure; those potatoes that were planted early, were not diseased, but were of a good quality: of those that were planted in 1844 late, and with barn yard manure, on another piece of ground, fully one half of them were diseased and lost.

The last year, 1845, he manured his potatoes entirely with Poudrette, made by the Lodi Manufacturing Co., and the whole crop was sound and good, and a fair yield, considering the drouth. His neighbor whose farm adjoins, the last year, 1845, planted all his potatoes

with barn yard manure. The yield, it is said, was not more than about half as much as that of Mr. H., and they were so much diseased, that according to his estimate, he had not more than ten bushels left from the acre he planted.

The above discloses two important facts:

1—That early planted potatoes do not suffer by disease as those that are planted late.

2—That potatoes manured with Poudrette do not in some cases suffer by disease, as much as when planted with barn yard or stable manure.

H. W. C. states that he tried Minor's poudrette in connection with his own manufacture. It was used on potatoes, and the yield was above one-sixth in favor of his own. He says, however, Minor's poudrette is a very good manure, "but I do not think it as profitable as stable manure, where the latter can be had for \$1 per two-horse load—carting it two miles, as we can get it here."

#### LARGE CROP OF VEGETABLES.

JAMES ROBERTSON, of Windham Centre, N. Y., informs us that he gathered last year, from one acre and eight rods of land, the following produce:—

Ruta-baga,.....	819 bushels.
Sugar beets,.....	134 "
Carrots,.....	132 "

Total,..... 1085

The ruta-baga grew on 122 rods of ground, and the sugar beets and carrots 23 rods each. The turnep ground which was sod, was plowed the previous fall, was harrowed well in spring, and cross-plowed in June, and fifteen loads of manure from the sheep-house spread, and the ground again harrowed well. With a small plow it was then thrown into ridges about seventeen inches apart, and the seed sown about the 10th of June, in drills, and the crop was hoed twice. The beets and carrots grew on ground which the year before was occupied with ruta-baga. It was plowed deep and a light coat of sheep manure spread and harrowed in. The crop was sown in drills fourteen inches apart, about the first of May, and was hoed twice.

#### THE PUMPKIN.

EXTRACT from a letter written by ALEX. LEEDS, St. Joseph's, Michigan:—"I remember seeing, I cannot say when or where, that pumpkin and squash seed steeped in a solution of chloride of lime, were up and in the rough leaf, while those not steeped, were but bursting above the ground, though planted at the same time. The benefit to the fruit was not mentioned. It may answer to hasten the vine when the seed is planted late. I also would like to see an analysis of the pumpkin. I have been told that some farmers make an oil from the pumpkin seed, which burns very well and gives a good light."

#### FARRIERY.

A correspondent, signing "JULIUS," and dating at Cornish, N. H., thinks he practices a system by which cows may always be delivered of calves without injury. He says—"When a calf is presented tail foremost, if the cow has been making exertion any length of time, the calf will generally be found lifeless, and thrown back so far that it is impossible to push it far enough forward to turn it so that the presentation shall be natural. In all unnatural presentations, my first step is to see if the calf can be placed in a natural position by turning or raising—if not, my next step is to let one person pull moderately upon the tail while another slips up his hand beside the calf and presses back, at the same time, the external parts of the cow, so that the haunch of the calf presents itself, and I am able to cut into and dislocate the socket [hip] joint, which will turn up in such a manner that I can attach a strap to the whirlbone, and then let the person at the tail take the strap and draw steadily while I split the flesh and skin of the leg and flay it from the bone as far down as the gambrel joint, turning it, as you



see, wrong side out. By this process about one quarter of the calf is extracted. I then turn the cow on the other side, and deal with the other hind leg in the same manner, and the cow, with very little exertion to herself, and without any danger to her, is readily delivered."

#### VALUE OF THE CULTIVATOR.

We might fill pages with extracts from private letters attesting the value placed upon the *Cultivator*, could any public object be accomplished by it. We give the following, merely to show that it is useful to others as well as to farmers. A subscriber at Meriden, N. H., says—"Though engaged in trade and cultivating only a garden, I think I can hardly spend a dollar better than by renewing my subscription to your paper. Aside from its interest to the practical farmer, it contains useful hints enough in domestic economy, and matters in which all are concerned, who have a family at least, to much more than compensate for the trifling sum asked for it."

#### THE WINTER IN VIRGINIA.

WM. A. STAPLES, Amherst co., Va., writes under date of Jan. 4th last—"We have had some cold weather this winter. Our canal has been closed for two weeks, but all is fair again, and plows are now running."

#### GRAZING IN EASTERN PENNSYLVANIA.

Extract of a letter from J. PRICE, Esq. to the *Cultivator*: "The eastern part of Pennsylvania is becoming every year more and more engaged in the grazing business—but little attention is paid to raising cattle, the graziers depending almost altogether for a supply of beef cattle from N. York, Ohio, &c., &c. According to the best estimate I am at present able to form, the number fattened annually in this county is between forty and fifty thousand head. Lancaster, York and Dauphin are fast following the example of Chester. The reason of this is that the distillation of grain into whiskey is fast going out of practice. I believe there is not a single distillery in operation in this county at present, and at least three-fourths of them in Lancaster and adjoining counties are defunct, and I think will soon cease altogether."

#### PRICES OF PRODUCE IN TENNESSEE.

SAMUEL T. BICKNELL, of Blount co., Tenn., writes under date of Dec. 27th last, that pork is worth \$3 per hundred pounds—corn 20 to 25 cents per bushel—wheat 50 to 75 cts., and that farmers cannot supply the demand for all kinds of produce—that many of the South Carolinians had sent the greater portion of their stock into East Tennessee to be wintered. Mr. B. pays us a compliment in regard to the influence of the *Cultivator* in his neighborhood—the perusal of which, he is pleased to say, "tends to the improvement of the land, and consequently adds to the contents of the pocket, so that the subscribers make one step towards economy."

#### COMPLIMENT TO AN AMERICAN AUTHOR.

Mr. TUCKER—I deem it proper that the pages of the *Cultivator* should record the flattering compliment recently paid by a royal personage to Mr. A. J. DOWNING, one of our citizens well known for his works on Landscape Gardening, Rural Architecture, &c., which from their publication on this side the water, have been regarded with high admiration, and are already considered as standard works.

His work on Landscape Gardening has also attracted attention in Europe, and has been greeted there with many expressions of commendation. The Queen of Holland has lately forwarded to Mr. DOWNING an autograph letter, together with a magnificent ruby ring, encircled by three rows of diamonds, in acknowledgment of the pleasure which she has derived from the perusal of his book. Perhaps no similar recorded instance can be found of a royal autograph having been added to the gift of a jewel by way of giving stronger emphasis to the expression of admiration.

A. OF THE NORTH.

#### TRANSPLANTING TREES.

Very few who have been accustomed to the culture of fruit trees and to transplanting young trees from the nursery, are aware of the great improvement resulting from a frequent previous transplanting, before removal to the garden or orchards. Having made a good many observations on this point, we have given in the



Fig. 18



Fig. 19.

annexed wood-cut, fair representations of the roots of two young trees, fig. 18, exhibiting the usual appearance of a tree which has stood on the spot where it came up from the seed, and fig. 19, the roots of a tree which has been two or three times transplanted. The former has but few roots, and those extend to a distance in the soil; the latter has a multitude of short fibres, necessarily resulting from the successive cutting off of the longer roots in removal, and producing in their place the growth of many shorter ones. Hence in taking up a tree thus previously prepared, little risk or check in growth is experienced, as the entire mass of fibres is easily preserved from mutilation in digging. But a tree of equal size which has not been transplanted before, has established itself by a few long roots, firmly in the soil; and these must be more or less torn in removal; hence the consequent check in growth and danger to the life of the tree.

Fruit-trees which have been well prepared previously for transplanting, by this method, may be removed with greater safety even when so large as to be in a bearing state, than if less than half that size, without such preparation. It is by practicing this method, that nursery-men in some parts of Europe are enabled to show to purchasers their trees for sale in full bearing and with handsomely formed heads. It is obvious that in setting out such trees, more care is needed in spreading out the numerous fibres, in the natural position in which they grew, and in filling in all the interstices with fine earth; and that the practice of dashing in a few quarts of water when the hole is partly filled, to carry the earth into all the small crevices among the roots, is quite important. Where, also, this practice is pursued, greater fertility of soil is needed, to counteract the slightly retarding effect of successive removals.

#### BRIDGE PLANK FOR WHEEL-BARROWS.

In wheeling manure, muck, sand, &c., on garden beds, and in removing from them various kinds of litter and refuse matter, the box-edging is very often injured by crossing and recrossing. To secure edgings from any danger of the kind, provide a bridge-plank, tapering at each end, and with a space cut beneath for the box, over which the wheel and the feet of the gardener may pass without the slightest injury to the edging or obstruction to the work.



Fig. 20.

MOSS ON ROOFS, accelerates the decay of shingles, and may be prevented or destroyed by sprinkling white lead on the upper part of the roof, so that the rain may wash it over the roof.

CHEAP CULTURE OF POTATOES.—A correspondent of the *Boston Cultivator* plants in hills, which he covers lightly, by a plow, with earth as soon as the potatoes are above ground. When they come up again through this light covering, he repeats the operation by cross-plowing, covering up as before. The potatoes are never injured, and a great saving of labor is effected.

## NEW YORK STATE AGRICULTURAL SOCIETY.

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THE annual meeting of the Society was held at the Capitol in this city on Wednesday the 21st January. The number of people in attendance was greater than at any previous similar meeting, and an unusual interest was manifested.

A report was received from Dr. LEE, in relation to the duties which he, as Corresponding Secretary of the Society, and as a public Lecturer, had performed during the past year.

THE report of the Treasurer was read, showing as follows:

Balance in treasury at last meeting,	\$3,932.09
Interest on stock, .....	210.00
Donation from Francis Granger, .....	25.00
„ from R. L. Pell, .....	5.00
Received from State Treasury, .....	700.00
Receipts from individual members, ....	80.00
„ at State Fair, .....	4,370.18

\$9,322.27

## Payments.

On account of Premiums, .....	\$2,411.50
Salary of Recording Secretary, ....	300
Public Lecturer, .....	180
Printing and binding, .....	187 39
Expenses at Fair at Utica, .....	556.94
To H. O'Reilly, .....	48
Sundry incidental expenses, .....	92.23

\$3,776.06

Invested in Albany city stock, .....	3,000.00
„ Bond and Mortgage, ...	2,000.00

\$8,776.06

Leaving in the treasury a balance of \$546.21

On motion of Mr. COMSTOCK, a committee, consisting of three from each Senatorial district, was appointed to nominate officers for the ensuing year, and to recommend to the Executive Committee a suitable location for holding the next Cattle Show and Fair.

On motion of Mr. L. F. ALLEN, a committee was appointed to prepare business for the action of the meeting. The chair appointed Messrs. Allen of Erie, Comstock of Albany, Pratt of Greene, Walbridge of Tompkins, Lee of Monroe.

Mr. ALLEN, from the business committee, reported the following resolutions, which were adopted:

*Resolved*, That a dairy committee of three persons be appointed by the Executive Committee of the Society whose duty it shall be to ascertain the actual product of the best cheese dairy of the State, that the locality of such dairy be ascertained in latitude; the composition of the soil as near as may be where the dairy farm be situated; the kind of grass used for pasture and for hay; the quantity, in pounds, of milk per cow on the average and in the aggregate; the quantity of cheese to the hundred pounds of milk produced; the gross quantity for the season of milk and cheese produced, the quality of the cheese, the method of making it, the breed of cows composing the dairy, and all such other details procured as shall determine the most profitable mode of conducting the cheese dairy business, and that one hundred dollars of the funds of the Society be appropriated in giving three premiums to the most successful competitors reporting any such practice and its detail to said committee, said committee to report to the Society at its next annual meeting.

*Resolved*, That a committee of — be appointed by the Executive Committee who shall report to the next annual meeting a list of not exceeding 30 kinds of apples, which shall be in their opinion best adapted to the economical demands of the people of this state, and to be best suited to the different localities of the same, comprising their most extensive use in all seasons, for home consumption, and for exportation, the individual names of said fruits, a drawing of each separate kind, with a particular description thereof; and that in this

connexion they also take into consideration the several classes of fine fruits as adapted to the above purposes, and — dollars be appropriated as in the judgment of the Executive Committee shall be necessary to accomplish this object.

Wednesday Evening, Jan. 21.

The Society convened pursuant to adjournment at the Assembly Chamber.

Mr. DENNISTON from the committee to nominate officers, reported the following list which was unanimously adopted:

J. M. SHERWOOD, Auburn, President.

## VICE-PRESIDENTS.

ROBT. H. LUDLOW, New York,  
ABRAM BOCKEE, Federal Store,  
EZRA P. PRENTICE, Albany,  
THOS. J. MARVIN, Saratoga Springs,  
POMEROY JONES, Lairdsville,  
J. R. SPEED, Caroline,  
H. S. RANDALL, Cortland Village,  
LEWIS F. ALLEN, Buffalo.

LUTHER TUCKER, Albany, Recording Secretary.

JOEL B. NOTT, do. Corresponding do.

J. M'D. M'INTYRE, do. Treasurer.

## ADDITIONAL MEMBERS OF THE EX. COMMITTEE.

ALFRED CONKLIN, Auburn,  
AMI DOUBLEDAY, Binghamton,  
GEORGE VAIL, Troy,  
AMBROSE STEVENS, New York,  
JOHN MILLER, Truxton.

The same committee also recommended Auburn as the place for the next Cattle Show and Fair.

Prof. HALL exhibited a Geological Map of the State with the average product of wheat in each county, and made some very interesting remarks in explanation of the connection of Geology and Agriculture, for which the Society tendered him their thanks.

Gen. HARMON read the report of the committee on Wheat, Barley, &c.

Mr. E. KIRBY gave notice that a proposition will be presented at the next annual meeting so to alter the constitution of the Society that all ex-Presidents shall be standing members of the Executive Committee in addition to the board as now provided for.

Thursday Morning, Jan. 22.

The Society met in the Lecture Room of the Young Men's Association.

Col. SHERWOOD read the report of the committee on Peas, &c.

Prof. EMMONS, from the committee on Essays, made an interesting report, concluding with the list of prizes awarded.

Dr. BEEKMAN, chairman of the committee on Farms, made a very interesting and valuable report, giving in a condensed form, a great variety of valuable information, derived from the papers submitted to the committee.

Dr. B. also read a very interesting communication from S. S. RANDALL, Esq., on the Agricultural statistics of the state.

Mr. PRATT, of Greene, from the business committee, offered the following resolution, which was adopted:

*Resolved*, That the Executive Committee be requested to take into consideration the expediency of offering the like premiums, or of less amount, on the subject of the butter dairies of this State, to be conducted in the same manner, and under the same rules of particularity in ascertaining its results as have been adopted by the Society at its present session in relation to cheese.

Thursday Evening, Jan. 22.

The Society met at the Assembly Chamber, when the annual Address was delivered by the President, B. P. JOHNSON, Esq. As it is to be published, it is sufficient to say of it, that it was alike creditable to the Society and its author.

On the conclusion of the Address, Mr. JOHNSON introduced the President elect to the Society, who, before taking the chair, briefly returned his thanks for the honor conferred upon him by the Society in electing



him their President, an honor of which the highest individual in the country might well feel proud.

On motion of Dr. LEE, of Erie, it was unanimously

*Resolved*, That this Society highly appreciate the services of its late President, B. P. JOHNSON, as the presiding officer of said society, and that he has its thanks for his highly instructive and interesting address, just delivered before this body, and that he be requested to furnish a copy for publication.

On motion of Mr. STEVENS, of New-York,

*Resolved*, That the thanks of this Society be given to the officers of the Society whose terms expire this day, for the able and faithful manner in which they have performed the duties of their offices during the past year.

On motion of Judge CHEEVER, of Saratoga,

*Resolved*, That a committee of three be appointed to ask the Legislature, on behalf of this society, to cause to be prepared by the State Geologists, or others, an abridgment of the Geological survey of the State, which shall embrace the geological map and sufficient of Geology to make the map intelligible to the common reader and shall also fully exhibit the connection between the geology and agriculture of the State, and which can be afforded at a small price.

Messrs. Lee, Johnson and Beekman were appointed the committee under the above resolution.

On motion of Mr. Allen, of Erie,

*Resolved*, That this Society view the proposed effort of Messrs. HARMON & LEE, to establish a scientific and practical school of agriculture in the county of Monroe, with approbation. We consider its object as highly beneficial to the agricultural interests of the State, and recommend it to the public approbation and patronage.

On motion of Mr. JOHNSON, of Oneida,

*Resolved*, That the Institution at Aurora, Cayuga co., under the charge of C. C. YOUNG and DAVID THOMAS, is one worthy of the attention of farmers, combining as it does scientific with practical agriculture.

On motion of Mr. FULLER, of Onondaga,

*Resolved*, That we recommend to the attention and patronage of the public the Agricultural School of Mr. WOOLWORTH of Cortland county.

On motion of Mr. BLOSS, of Monroe:

Whereas it is very desirable to have weekly meetings of the friends of agriculture, for the purpose of free discussion, therefore

*Resolved*, That such meetings be held during the present session of the Legislature, and that the Secretary be directed to apply to the Hon. the Assembly for leave to hold meetings in this chamber every Thursday evening.

On motion of Mr. JOHNSON, of Oneida,

*Resolved*, That the thanks of this Society be most cordially tendered to the Hon. the Assembly for the use of their Hall for the meetings of the Society, and that the Secretary communicate this resolution to the Speaker of the House.

The following is a list of the premiums awarded:

#### ON ESSAYS.

On the importance of scientific knowledge in prosecuting agriculture; to John J. Thomas, Macedon, \$100.

On the culture and manufacture of silk; to H. P. Byram, Brandenburg, Ky., \$10.

On the Potato Rot; to Andrew Bush, East Coventry, Pa., \$20.

On Irrigation; to John J. Thomas, \$20.

#### ON FARMS.

1. To Geo. Geddes, Fairmount, \$50.

2. To Wm. Buel, Rochester, \$30.

3. To Wm. Garbutt, Wheatland, \$20.

Sets of vols. Transactions, to

W. P. Capron, Macedon, Wayne Co;

Jonathan Tallcott, 2d, Rome, Oneida Co.;

Rufus S. Ransom, Perryville, Madison Co.;

Daniel Gates, Sullivan, Madison Co.;

N. S. Wright, Vernon, Oneida Co.;

Tyler Fountain, Peekskill.

#### ON WINTER WHEAT.

1. To Edward Rivenburg, Vernon, \$15.

2. To Stephen B. Dudley, E. Bloomfield, \$10.

3. To Abraham Fairchild, Arcadia, 2 vols. Trans.

To Samuel Davison, Greece, a discretionary premium of eight dollars for report on experiments on the culture of wheat.

#### SPRING WHEAT.

1. To Robt. Eells, Westmoreland, \$15.

2. To Erastus Dayton, Vernon, \$10.

#### BARLEY.

1. To Hiram Mills, Martinsburg, \$10.

2. To N. S. Wright, Vernon, \$5.

3. To S. B. Dudley, E. Bloomfield, Vol. Trans.

#### OATS.

1. To Elias J. Ayres, Trumansburg, \$10.

#### INDIAN CORN.

1. To Geo. Vail, Troy, \$15.

#### PEAS.

1. To Thos. Lane, Marcy, \$10.

3. To Wm. French, Canajoharie, \$5.

#### FLAX.

1. To E. C. Bliss, Westfield, \$5.

2. To Rufus S. Ransom, Perryville, Vol. Trans.

#### CARROTS.

1. To Wm. Risley, Fredonia, \$10.

2. To Lucius Warner, Vernon, \$5.

#### MANGEL-WURZEL.

1. To Charles B. Meek, Canandaigua, \$10.

2. To Lucius Warner, Vernon, \$5.

3. To J. F. Osborn, Port Byron, Vol. Trans.

#### SUGAR BEETS.

1. To S. B. Burchard, Hamilton, \$10.

3. To J. F. Osborn, Port Byron, Vol. Trans.

#### RUTA-BAGAS.

1. To John G. Smedburg, Prattsville, \$10.

3. To C. B. Meek, Canandaigua, Vol. Trans.

#### BROOM-CORN.

There was but one application, that of E. C. Bliss, of Westfield, to whom the committee awarded a copy of Colman's Tour.

**DEATH OF E. W. BULL, Esq.**—We learn with regret the death of this valuable citizen, late of Hartford, Connecticut. He evinced a deep interest for the advancement of agriculture and horticulture, to which he contributed important aid. We copy the following notice of his death from the Hartford Courant:

"The death of our late esteemed fellow citizen, E. W. Bull Esq., is calculated to produce the deepest feelings of grief. Few could be removed from among us whose removal would cast more gloom over the face of the community. He was taken away, in the prime of business life, in the full vigor of active and energetic manhood. He was a man whose death will be very keenly felt, and will produce a large vacancy in the circle in which he moved. Of superior business capacity, he devoted himself to the daily avocations of life, with great energy, and with unwonted perseverance.

"As the proprietor of the High Street Garden, his taste and activity in horticultural pursuits, have long made that a spot of delightful resort to very many of our fellow citizens, and to many strangers, to whom he extended the courtesies so grateful to those who visit our city for a season. Many and deep sympathies will be felt for the relatives who are mourning his sudden decease."

**HARTFORD COUNTY AG. SOCIETY.**—We have received several papers containing the doings of this society for the last year, which in many respects we find interesting. There is one thing however which strikes us as being very defective. We notice that the premiums on "blood stock," and some other descriptions of stock, were awarded without the names of the owners, or the animals, or the breed of the animals being mentioned. We have no objections to this plan so far as regards the award—we think in fact that it has several advantages—but where the report goes out to the world, it seems proper that both the name of the owner and the breed of the animal should be stated, otherwise we do not see how the community is to know what stock is most improved.



ALBANY, FEBRUARY, 1846.

## TO CORRESPONDENTS.

WE have to acknowledge the receipt of communications since our last, from Prof. E. N. Horsford, D. T., A Subscriber, H. Luther, P. Davidson, A. T., Dr. Andrew Stone, A Farmer, E. Marks, Edgcomb, Eaton, S. H. Smith, Luman Lane, H. W. Crosby, Andrew Bush, T. Minot, A. of the North, Prof. L. Vanuxem, G. Butler, G. W. B., S. B., W. S. G., R. A. A., Ira Brayton, H. B. Tuttle, J. B., P., J. Townsend, Geo. Vail, E. Comstock, Seth Whalen, D. Gold, R. K. Tuttle, Mary, J. Fennimore Cooper, J. D. Spinner, Quid Nunc, R. Julius, S. P. Henkel, Fair Play, Indigena, Old Bachelor, A. Delaware Subscriber, Th. Close, A. Wanzer, J. T. Nathorst, S. Osborn, H. H. B., Joseph Annin, A. E. E., Wm. Todd, W. H. Wills, Jason Smith, Nathan Wey, A. E. Ernest.

It will be seen by the above, that we have been favored with an unusually large number of communications the past month. In this number we have given over FORTY of these favors, many of them to be sure greatly condensed; and we shall make room for those remaining on hand, as rapidly as possible. Our hearty thanks are tendered to the writers who have thus enabled us to give an interest and value to our pages which they could not otherwise attain.

W. L. G. has our thanks for his sensible article on cement pipes; but since the publications on this subject in our last number, there seems at present no need of anything further.

A., TIFFIN, O.—We should be glad to hear a report of the "progress," to which you allude.

Lieut. S. H. D., U. S. A., has our thanks for his kind remembrance of the Cultivator, for which he has for years past, raised 7 or 15 subscribers at every place at which he has been stationed.

G. W. B.—Let us have the article you speak of, if you please.

## MONTHLY NOTICES.

STATE FAIR.—The next exhibition and fair of the N. Y. State Ag. Society is to be held at AUBURN, Cayuga county, on the 15th, 16th and 17th days of September next.

IMPROVED FLAILS.—We have received from John Moore, West-Springfield, Mass., a couple of flails, superior in finish and excellence to any we have before seen. One may be seen at this office, and the other at the agricultural warehouse, 23 Dean street. Mr. Moore will sell them at 75 cents singly or \$7.50 per dozen.

CHAMPAIGNE CIDER.—Mr. C. L. Rundle, of Greenville, Greene county, has sent us a sample of his refined cider. We think it equal to any we have ever tasted, and would recommend those whose health would be improved by the use of the article, to apply to Mr. R. for their supply. We believe he made over two thousand barrels last year.

DOWNING'S WORK ON FRUITS.—We are gratified to learn that the sale of this work has been so rapid as already to require a third edition, though not nine months have passed since its first publication.

COLMAN'S TOUR—Part V.—We learn from the publishers that this part of Mr. Colman's European Agriculture is expected to be issued in a few days.

AGRICULTURAL SCHOOL.—We learn that Dr. D. LEE, who is now editor of the Genesee Farmer, in connection with Gen. RAWSON HARMON, have formed arrange-

ments for opening a school for the study of scientific and practical agriculture. It is to be located on Gen. H.'s farm, in Wheatland, about six miles from Rochester. We have not yet seen a plan of this school, but we presume a leading object will be to test theories by practical and careful experiment in field culture; and in doing this, in a proper manner, it cannot fail to be highly useful. Dr. LEE has devoted much study to the science of agriculture, and we believe has had considerable experience in the capacity of a teacher. Gen. HARMON is considered one of the best practical farmers in the State—in wheat culture, in particular, he has been quite eminent; and the community are under large obligations to him for his numerous and well-conducted experiments to test the relative value of a great many kinds of wheat. We wish the school success.

SILLIMAN'S JOURNAL.—It will be seen by the Prospectus in another part of this paper, that a new series of this truly valuable and national work, was commenced the present year, with some decided improvements over the former series, which had extended to 50 volumes. We commend it, most heartily, to public attention; and trust that the friends of science will no longer permit it to languish for want of that support which it so richly deserves.

APRICOTS FROM PLUM STONES.—An opinion was advanced by a correspondent in our December number, which should have been noticed and corrected at the time. He thinks the natural affinity of the plum and apricot is so strong, that a change from one to the other from seed may occasionally take place. As the plum and apricot are very distinct species, so much so as to be separated by some botanists into different genera, it must be obvious at once that such a change cannot in the nature of things take place, nothing of the kind having ever been known or proved in the history of the vegetable kingdom. We do not of course attempt to explain the case spoken of, not knowing all the circumstances of the case, and which evidently were not known to the observer; but where data is wanting, it is not necessary to resort to the absurdity of transmutation from seed; or the still greater absurdity, if possible, of transmutation by the influence of a stock.

MACHINE FOR SOWING WHEAT.—Rev. A. R. RUDER, of Mt. Jackson, Shenandoah co., Va., wishes information in relation to "a one horse machine with which (as it is said) one man or boy can sow with almost mathematical evenness, 20 acres of wheat in a day; and also of another implement for covering the seed which is said to do the work both better and faster than both the harrow or the plow." The machine is stated to have been used extensively last season in Western New York. If any of our readers can give any information respecting it, they will confer a favor.

A Farmer's Club has been established at Penn-Yan, in this state. John Mallory, President; Uriah Hanford and John Hatmaker, V. Presidents; A. Bigelow, Secretary; F. A. Stebbins, Treasurer; H. P. Sartwell, Librarian. Success to all such associations.

MR. ALBOT'S HORSE CONSTERNATION.—We would call attention to the advertisement of this horse to be found in this number. We noticed him in our July number of last year. He had then, however, but just arrived in this country, and was in not very good condition to show; but we saw him subsequently at the state show at Utica, at which time he made a very fine appearance, and was, beyond a question, entitled to the first premium, which he received.

SKINLESS BARLEY.—JOHN D. SPINNER, of Herkimer, states that this kind of Barley has yielded much better with him than the common kind—that it usually weighs 61 lbs. per bushel, and that it makes good bread and "excellent warm biscuit." He also states that the grain is not liable to injury from the fly, and he thinks it worthy the attention of farmers in those sections where wheat is attacked by this insect.

DUTTON POTATOES.—In reference to the potatoes of this name mentioned in our last, Mr. STREET DUTTON wishes us to state, that they were not originally pro-



cured from a man "by the name of Dutton near Philadelphia," but were brought from that section by S. A. Law, Esq., of Meredith, and received the name of *Dutton* potatoes, subsequently.

**CORRECTION.**—Cultivator for 1845, No. 337, in a description of Bog-cutter, for "forward beam of steel," read *sled*.

**PRATTSVILLE**, in the county of Greene, which it is now purposed to make the centre of a new county, was founded by the Hon. ZADOCK PRATT, in 1824. The establishment of a large tannery by that gentleman, and now carried on by him in connexion with JOHN WATSON, has been the cause of a rapid growth of the village, which now numbers two thousand inhabitants. It has three churches, three large and well-kept hotels, a bank with a capital of \$100,000, seven stores, and a spacious brick academy which cost over \$3,000, more than one half of which was contributed by Mr. Pratt. The tannery of Messrs. PRATT & WATSON tans 60,000 sides of leather annually and employs a capital of about \$250,000. The village also contains a large flouring mill, a foundry and mechanics shop, a satinett factory which turns out 150 yards of cloth per day, and a company has recently been formed for the manufacture of fancy cassimeres, with a capital of \$15,000. We are informed that the enterprising gentleman, by whose industry and liberality this thriving village has been chiefly built up and ornamented, made "his first savings from picking berries in his leisure hours, and selling them for sixpence per quart."

#### ANSWERS TO INQUIRIES.

.....

**BUCKWHEAT AS MANURE.**—"A Subscriber"—(Vernon Centre.) As to the relative advantages of clover and buckwheat, for plowing in as manure, we can only say that from our own experience, (which has not however been great on this point,) we think the effect of clover best. Whether buckwheat sometimes "leaves the land sour," is a question on which there is a difference of opinion. We have heard persons contend that it did so leave the land, though we have never experienced it. Perhaps the nature of the soil may cause a variation in its effects. We have never tried plowing it in except on rather light warm soils. We suppose it would be best to plow it in after it had attained its full growth. Most farmers who practice it, we believe, turn it in while in blossom; but if it was considered an advantage to have the crop renewed, it might stand till the seed had formed, enough of which would probably come up after it was plowed in, to cover the ground again.

Another correspondent asks whether the grain of buckwheat is injured by the honey being extracted from the flower. We cannot tell—who can?

**PLOWING.**—HIGHLANDER, (Otsego co.)—You say you want a "plow that will turn a furrow 9 or 10 inches wide and 6 inches deep and lay it on the edge of the previous one, with the greatest ease to the team." We think there are several kinds of plows that will answer the purpose desired—such as Prouty & Mears' "5½ self-sharpening Centre Draft," some of the various patterns of the Worcester plow, and Delano's "Diamond" plow. All these may be had at the Agricultural Warehouse, 23 Dean street, this city. We do not consider "9 or 10 inches" a wide furrow, though we think it is wide enough.

**COW-PASTURE.**—"Will cow-pasture hold its own without manure of any kind?" We suppose it understood the the manure made by the cattle while feeding on the ground, is to be left there. Whether the pasture would 'hold its own,' we think would depend much on the nature of the soil. If it was moist and natural to grass, it might not deteriorate; but in such land as the grass would be likely to die out, the pasture would of course decline in value. Besides, on moist soils, the manure is less wasted by exhalation, and its properties are more retained in the soil than on dry porous soils where the grasses could not flourish as well. As to the

"quantity and quality of milk" produced from old pastures, or from those recently seeded, as we think much depends on the soil, also; but in good grazing districts, we believe the opinion is generally prevalent that old pastures afford the richest milk, though it may be less in quantity. The quere in reference to lime or plaster, it is impossible to answer. In the absence of any description of soil or location, it cannot be told which of these substances would be "preferable," or what quantity of either should be used. Experiment alone can give positive information on this point.

**BONE DUST, &c.**—S. M. N. (New Marlboro, Mass.)—There is no bone dust in this market. The price of Sulphate of Magnesia is 2½ cts. per lb. by the quantity. Silicate of Potash is not for sale here.

**CREAM.**—D. R. (Frederick co., Md.)—An experienced dairy-woman says she knows no reason why cream should "turn blue on the surface," unless it has stood too long, by which the cream settles to the bottom and the bluish watery fluid rises to the top. It is also suggested that it is best to keep cream but a short time, in summer—never till it is sour, if butter of the best quality is desired—and it is proper to stir the cream well every day, taking care when a new portion is turned in, to mix it thoroughly with the quantity before deposited.

**BLIGHT IN FRUIT-TREES.**—L. L. (Summit co., O.) We cannot tell what kind of blight attacks your trees. If it is caused by a species of aphid, we do not see that any good could be effected by "putting iron around the tree." If it is the "fire blight," we do not know that you could do better than to prune off the limbs as fast as they die. What effect "electric conductors," placed under the trees, would have in protecting them from this blight, we know not—we don't suppose they would do any hurt.

**"HORSE NETTLE."**—E. W. J. (Fort Defiance, N. C.)—We do not know the plant you allude to under the name of "Horse nettle"—therefore can give no directions as to its extirpation. Others may be able to give the information wanted.

**CUTTING DOWN HAY-MOWS.**—H. W. C. (La Fayette College, Pa.)—It is always best to expose hay as little as possible to the air, after it is cured; and by cutting down a part of the mow at a time, less surface is exposed than by throwing off the whole top. But as to the precise "per cent saved" in this way, we have never seen it *cyphered* out—and the same may be said in regard to the loss by "evaporation" in moving a stack of hay "three miles in a still day."

**WATER LIME.**—A. C. (Brandywine, Del.)—The best kind of water lime can be had in this city at a dollar and a half per bbl.

**"FAMILY ALMANAC."**—A. L. (St. Joseph, Mich.)—We do not know that such a work has been published.

**DISEASE IN SHEEP.**—L. N. (Chautauque co., N. Y.) wishes to know the name and proper treatment of a disease among his sheep, which he says affects them as follows:—"A sore commences on the end of the under lip, very small at first, but enlarges from day to day for four or five days, when the upper lip and end of the nose become sore in the same way, and after a few days the sore extends back, and the whole nose becomes sore to the corners of the mouth, continuing so for a week or ten days, when it begins to get well."

**GLANDERS.**—J. B. (Hartford, N. Y.)—We would refer you to Dr. GEORGE WRIGHT, of this city, veterinary surgeon, for the information you want in reference to the disease of your horse.

**ANALYSIS OF INDIAN CORN.**—O. W. S. (Lee, N. Y.)—We do not know of any analysis of this plant that could be relied on. When Mr. John P. Norton returns to this country, which will be next season, he will probably analyze it accurately, and make known the result.

**SUNFLOWER SEED AND OIL.**—A. P. G.—The seed may be planted in rows four feet apart, and the plants thinned to two and a half feet apart, cutting to cure as

for corn. Fifty bushels of seed per acre on rich land with high cultivation, is considered an average yield. We cannot state the market value of the seed per bushel. The method of making the oil is the same as that of linseed oil; but the seed should be hulled, which is readily done by machinery, else the yield of oil will be one half less. When well managed, a gallon of oil may be obtained per bushel. The oil is excellent for lamps—has no smoke or offensive smell—and is preferred by many for table use to olive oil. The oil is also used in the preparation of fine soaps. The seed is excellent for fowls.

#### TO OUR AGENTS.

We should be ungrateful indeed, did we fail to return our acknowledgments to those kind friends who have enabled us, in almost all cases without any compensation other than that derived from the gratification of benefitting the public, to acknowledge the receipt of over *Nine Thousand* subscribers the last month, being more than 1,000 over the number received in the same month last year. We should be glad, did circumstances permit, to render our personal thanks to each individual who has so kindly lent his services to aid us in promoting the circulation of "The Cultivator," and thus, as we trust, to awaken an increased attention, on the part of our farmers, to the lights which science and experience are shedding upon the pursuits of Agriculture. Annexed is a list of the post-offices, from which orders have already been received for 20 or more copies of our paper for the present year:

<i>New-York.</i>	Troy, .....	35	Williston, .....	25
Auburn, .....	Utica, .....	27	<i>Delaware.</i>	
Amsterdam, .....	Vernon Centre, .....	23	Wilmington, .....	50
Buffalo, .....	Whitesboro, .....	21	<i>Rhode-Island.</i>	
Barclonia, .....	Watertown, .....	38	Providence, .....	64
Butternuts, .....	Waterloo, .....	20	<i>Kentucky.</i>	
Baldwinsville, .....	<i>Pennsylvania.</i>		Frankfort, .....	33
Binghamton, .....	Carlisle, .....	49	Louisville, .....	27
Cedarville, .....	Greensburg, .....	26	Lexington, .....	45
Champlain, .....	Lancaster, .....	30	Paris, .....	68
Clyde, .....	Newville, .....	21	Shelbyville, .....	20
Cooperstown, .....	Pittsburg, .....	90	Versailles, .....	32
Chittenango, .....	Philadelphia, .....	106	<i>Georgia.</i>	
Cazenovia, .....	Waynesburg, .....	22	Macon, .....	21
Cobleskill, .....	<i>Massachusetts.</i>		<i>Michigan.</i>	
Easton, .....	Boston, .....	172	Ann Arbor, .....	40
Eaton, .....	Fall River, .....	31	Ypsilanti, .....	35
E. Bloomfield, .....	Northampton, .....	26	<i>Dist. Columbia.</i>	
Esperance, .....	Springfield, .....	53	Washington, .....	22
Fulton, .....	Willbraham, .....	20	<i>Ohio.</i>	
Geneva, .....	<i>Connecticut.</i>		Aurora, .....	20
Hartford, .....	Bristol, .....	22	Gustavus, .....	22
Hillsdale, .....	Cheshire, .....	21	<i>Canada.</i>	
Hudson, .....	Colchester, .....	20	Montreal, .....	26
Ithaca, .....	East Haddam, .....	21	Quebec, .....	38
Livonia, .....	Farmington, .....	33	Simcoe, .....	22
Madison, .....	Jewett City, .....	21	<i>Maryland.</i>	
Maulius, .....	Middletown, .....	27	Baltimore, .....	20
New-York, .....	New-Haven, .....	100	Frederick, .....	22
Newburgh, .....	New-Milford, .....	22	<i>North Carolina.</i>	
Nunda Valley, .....	Ridgefield, .....	22	Newbern, .....	26
Oxford, .....	Suffield, .....	20	<i>New Hampshire.</i>	
Owego, 30, Oswego, 40	Watertown, .....	20	Walpole, .....	21
Palmyra, .....	Winchester, .....	21	<i>Virginia.</i>	
Plattsburgh, .....	<i>Vermont.</i>		Fairfax C. H., .....	22
Poughkeepsie, .....	Brandon, .....	27	Lynchburg, .....	44
Perry, .....	Charlotte, .....	23	<i>Wisconsin.</i>	
Rome, .....	Derby, .....	25	Milwaukee, .....	24
Rochester, .....	East Poughkeepsie, .....	28	<i>New Brunswick.</i>	
Richmond, .....	Grand Isle, .....	25	St. John, .....	20
Rushville, .....	Middlebury, .....	20	<i>Alabama.</i>	
Schenectady, .....	Manchester, .....	20	Tuscaloosa, .....	21
Syracuse, .....	Vergennes, .....	21	<i>Tennessee.</i>	
So. Middletown, .....	Waitsfield, .....	26	Franklin, .....	20

In our next, if we find it will not occupy too much room, we may give a list of offices where we have 15 or more subscribers.

#### FOR SALE OR EXCHANGE.

I OFFER for sale my farm of 300 acres and upwards, near the village of Salem. It produces well either grain or grass. The buildings are all that are necessary, and together with the land itself, and fences, are all in good order. The garden is well stocked with small fruits and flowers. The situation is pleasant—the country healthy and beautiful. Price, \$10,000. This property would be exchanged for real estate in any of the southern states—change of climate being desirable. JOHN SAVAGE.

Salem, Washington Co., N. Y., Feb 1, 1846.—11.\* [2]

#### PRICES OF AGRICULTURAL PRODUCTS.

New-York, January 22, 1846.

COTTON—Upland and Florida,—inferior, 6½a6½ cents—good middling, 7a7½—fine, 8½a9. Mobile and New Orleans,—inferior, 6½a6½—good middling, 7½a7½—fine, 10a10½.  
CHEESE—Shipping, per lb., 6a8 c.  
FLOUR—Genesee, \$5.62½  
GRAIN—Corn, southern, 69c.  
HEMP—Dew rotted, American, per ton, \$100—Manilla \$150.00.  
HOPS—Western 25 cts. per lb.  
HAMS—Pickled, 7 c. per lb.—smoked 9a9½ cts.  
HAY—North River, per hundred, 96a97c.  
LARD—8½a8½ per lb.  
PORK—Prime old, per bbl., \$10a\$11.  
BEEF—mess, per bbl., \$8.75a\$9.25.  
TALLOW—7½a7½ c.

WOOL—(Boston prices.) Jan. 21:

Prime or Saxony fleeces, washed per lb.....	40a42 cts.
American full blood fleeces.....	37a38 "
" three-fourths blood fleeces.....	32a33 "
" half blood do .....	30a31 "
" one-fourth blood and common.....	27a30 "

LIVE STOCK—Brighton Market—Monday, January 20, 1846.

At market, 375 Beef Cattle, 5 yokes Working Oxen, 26 Cows and Calves, 1250 sheep, and about 50 Swine.

Beef Cattle—sales of extra, \$5.75; first quality, \$5.25; 2d, do., \$4.50; 3d do., \$3.50a\$4.00.

Working Oxen—Sales not noticed.

Cows and Calves—Dull. Sales were made at \$18, \$21, \$26, and \$29.50.

Sheep—Sales noticed at \$1.75, \$2.13, and \$3.17.

Swine—Sales at wholesale at 4 and 5 c.; at retail from 5 for sows to 6a6½ for barrows.

#### PROSPECTUS OF THE SECOND SERIES

Of the *American Journal of Science and Arts*, to be conducted by PROF SILLIMAN, B. SILLIMAN, JR., and JAMES D. DANA, at New-Haven, Conn.

THIS Series will be commenced on the 1st of January, 1846, and will be published in six numbers annually, namely, in January, March, May, July, September, and November, of each year.

Each number will contain about 150 pages, making annually two volumes of 420 to 450 pages each, fully illustrated by engravings, as the subjects may require. The price will be FIVE DOLLARS a year in advance.

This Journal is intended to be a faithful record of American and Foreign Science. The "Scientific Intelligence," will contain a summary of the progress of Physical Science at home and abroad. The aid of the most able collaborators has been secured in carrying out the plan, and we trust the "Journal" will commend itself to a large class of readers.

A greatly increased subscription, (over that which the First Series of 50 volumes could number, is required to sustain the expense of a more frequent issue and the reduction of price.

The most liberal discounts will be made to those who will act efficiently as agents in procuring new subscribers.

The New Series will afford a fresh starting point for those who have not been subscribers to the First Series, and the aid of all such is invited as a tribute to the cause of useful knowledge, and to the rising reputation of our country.

It is our design to make this Journal as popular and valuable as possible. The present system of reduced postage, will take it to any part of the continent for ten cents per number.

THE AMERICAN JOURNAL OF SCIENCE AND ARTS, first appeared in July, 1818. Forty-nine volumes have been published, and a fiftieth volume, to consist of a *General Index* of the entire series, is in the course of preparation, and will be printed as soon as possible. These fifty volumes, coeval with nearly a generation of men, cover a very important period in the history of science and the arts of this country and of the world, and must ever remain an important work of reference.

This work may be had of Little & Brown, Otis & Broaders and Jordan & Co., Boston; of C. S. Francis & Co., and Wiley & Putnam, New-York; Carey & Hart, Philadelphia; N. Hickman, Baltimore, F. Taylor, Washington, D. C.; W. C. Little & Co., Albany, &c.

Remittances and communications may be made by mail, addressed to the Editors of the *American Journal of Science*, New-Haven, Connecticut. [2]

#### THE IMPORTED HORSE CONSTERNATION

WILL serve a limited number of mares this season at his own stables at \$20 each. It will be remembered that this horse was imported last June, and took the first premium at the State Fair. He boasts of an illustrious pedigree, is a beautiful brown, and has splendid action.

By Confederate, dam by Figaro, her dam by Waxy. Confederate was bred by Earl Fitzwilliam, got by Comus, by Cervantes, by Sir Peter, by High Flyer, by King Herod, by Flying Childers. Figaro, got by Hap Hazard, by Sir Peter, out of Miss Harvey, by Eclipse. See Stud Book.

The owners of fine mares will find it to their interest to have them sent early to the horse. Mares sent to foal will receive every attention, at the ordinary prices for keep. C. T. ALBOT.

Stokes, Oneida Co., Feb. 1—21.\* [2]



## PATENT PREMIUM FAN-MILLS.

**I. T. GRANT & Co.**, still continue to manufacture the celebrated Improved Patent Fan-Mills, at the old stand, Junction, Rens. Co., N. Y. These mills have taken the *first premium* at the following places:—New-York State Fair, at the Institute, New-York, the State Fair, at Pennsylvania, and the State Fair at Maryland. The subscribers have no hesitation in saying that these mills surpass anything of the kind ever offered in market. They are the only mill that has ever been produced that will chaff and screen wheat perfectly clean in one operation.

We also manufacture *Grain Cradles* of the very best quality, which have taken the first premium at the New-York State Fair. They are for sale at factory prices, at the following places:—

A. B. Allen's, 187 Water-st., New-York;

D. L. Clawson's, 191 " "

E. Comstock & Co.'s, Albany;

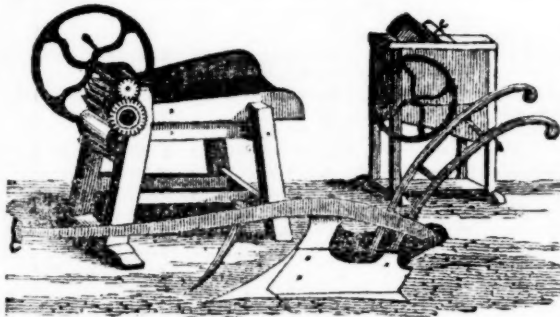
H. Warren's, Troy; and

Viall & Warren's, Mechanicsville, Saratoga Co., N. Y.

All orders thankfully received and punctually attended to. All goods delivered at Troy, N. Y., free of charge.

I. T. GRANT, & Co., Junction P. O., Rens. Co., N. Y.

Feb. 1—tf [2]



## PROUTY &amp; MEARS, BOSTON,

**C**ELEBRATED, highly approved, and unequalled **CENTER DRAFT PREMIUM PLOWS**—for sale at their *sole agents'*, **JOHN MAYHER & Co.'s**

Agricultural Warehouse, 195 Front-st., near Fulton, New-York.

The subscribers have just received a large assortment of Prouty & Mear's celebrated and highly improved **CENTER DRAFT PLOWS**, which are in every way *superior to all others now in use*; and having been appointed sole agents for the sale of the same in the city of New-York, we invite the public to call and examine for themselves, as the above plows cannot be obtained at any other establishment in the city. Dealers and others in the country supplied on the most reasonable terms.

We also wish to inform merchants and farmers that we have constantly for sale plows of our own manufacture, and all others now in use.

The following is a list of prices of some of the plows manufactured by us.

A No. 1, Worcester patent,	\$1 50
A " 2, " "	2 00
A " 3, " "	2 50
2 B " " "	3 50
2 B " " with colter,	4 00
Eagle, No. 1, " "	4 50
" " 2, " "	5 00
" " 2, " "	5 00
" " 2, " "	5 50
Meadow C " "	5 50
" " " " with colter,	6 50

Castings to fit the Worcester Ploughs, 3½ cents per pound.

We likewise have for sale the most extensive assortment of *Agricultural Implements* ever offered in this city, most of which are new and highly improved patterns, warranted to be made of the best materials, and of very superior finish, among which are the following:

Pitts' Corn and Cob Crusher,	Sinclair's Stalk and Straw Cutter,
Hussey's " " "	Hovey's " " "
Sinclair's " " "	Stevens' " " "
Hussey's Reaping Machine,	Greene's " " "
Bark Mills, 4 sizes,	I. T. Grant & Co.'s Prem. Fan Mills,
Coffee " " "	Clinton's Prem. Fan-Mills,
Corn Shellers of all kinds,	Rice's " " "
Horse Powers " " "	Holmes' " " "
Threshing Machines " "	Stone Trucks, Wheelbarrows,
Subsoil Plows, of the most approved kinds,	Mule Waggon, &c. &c.,
Cultivators of the most approved kinds,	

Langdon's much approved Cultivator Plows or Horse Hoe. All kinds of plow castings constantly on hand. All the above articles are offered for sale on the most reasonable terms. Castings of all kinds made to order. **JOHN MAYHER & Co.,** 195 Front-st., N. Y.

**N. B. Beware of Imposition.** Any person offering plows for sale, and representing them to be of our manufacturing without the full name "**J. MAYHER & Co.**" on the mouldboard and beam of the plows, are guilty of a *false representation*, as no person in the city and county of New-York has the genuine article for sale but ourselves. Feb. 1—[2] **J. M. & Co.**

## BLACK SEA WHEAT.

**T**HIS wheat has become justly celebrated in northern New-York, and also in Vermont and Canada, having succeeded admirably during the last ten years. It has not been found liable to rust, and the yield has in many cases much exceeded that of winter wheat. Orders for seed of this and also the Italian wheat, can be filled at the Albany Ag. Warehouse and Seed Store, 22 Dean-st.

E. COMSTOCK & Co.

Feb. 1, 1846. [2]

**LINNÆAN BOTANIC GARDEN AND NURSERY,** Late of **WILLIAM PRINCE**, deceased, Flushing, L. I., near New-York.

**T**HE new proprietors of this ancient and celebrated Nursery, known as *Prince's*, and exclusively designated by the above title for nearly fifty years, offers for sale a more extensive variety of **FRUIT AND ORNAMENTAL TREES, SHRUBS, VINES, PLANTS, &c.**, than can be found in any other nursery in the United States, and the genuineness of which may be depended upon; and they will unremittently endeavor to merit the *confidence* and *patronage* of the public, by *integrity* and *liberality* in dealing, and *moderation* in charges.

*Descriptive Catalogues*, with directions for planting and culture, furnished *gratis*, on *post-paid* application, and orders promptly executed.

**WINTER & Co., Proprietors.**

Flushing, L. I., Feb. 1, 1846.—2t\*[2]

## POUDRETTE.

**T**HE Lodi Manufacturing Company have on hand freshly manufactured poudrette, of the first quality, for sale in the city of New-York, at the following prices, viz:

From one to six barrels, inclusive, \$2.00 per barrel.

" seven and upwards, " 1.75 "

delivered in New-York, free of cartage and other expense.

At the factory, on the Hackensack river, where vessels drawing eight feet of water may go, at the rate of \$1.63 a barrel, or 3 cents per bushel.

This manure is not only the cheapest and best in use, but also is less dangerous to use than some others. Two barrels or eight bushels will manure an acre of corn. Instructions sent *gratis* with pamphlet when required. Letters (post-paid) addressed to the Lodi Manufacturing Co., 51 Liberty-st., New-York, enclosing the money, will be immediately attended to, or it may be obtained by application at the office of the company. Feb. 1—4t [2]

## CHEAP PLOWS AND PLOW CASTINGS FOR THE SOUTHERN TRADE.

**T**HE subscriber has just completed arrangements which enable him to sell the following *well known plows* at *considerably less prices than can usually be found*, viz:

The No. 10½ plows, complete.

" 11½ " " "

" 12½ " " "

" 21 " " "

Corn " " "

Seed " " "

and **J. M. & Co.'s—Minor & Dutcher's** "

Also the castings for all these different plows—and the skeleton i. e., all the iron-work alone, without being stocked.

The particular attention of southern dealers is invited, and call from purchasers is solicited, who will ascertain the truth of the above statement.

Orders accompanied with remittance, or satisfactory paper a reference will be promptly attended to.

**N. B.** A general assortment of agricultural machines and implements for sale. Horse-Powers, Threshers, Burr-Stone Portable Mills, Corn and Cob Crushers, Corn-Shellors, Straw-Cutters &c., &c. **J. PLANT, No. 5 Burling Slip, N. Y. City.**

Feb. 1, 1846.—1t [2]

## FIELD, GARDEN AND GRASS SEEDS.

**T**HE Albany Agricultural Warehouse and Seed Store, No. 22 Dean-st., is now furnished with a full stock of Seeds for spring use, embracing it is confidently believed, nearly all articles wanted by farmers. Among our field seeds may be found

Black Sea Wheat,  
Italian Spring Wheat,  
Marrowfat and other Peas,  
Barley, two and four rowed,  
Emir or Skinless Barley,  
Seed Corn, various kinds,  
Beans, several sorts,  
Orange and White Carrot,  
Ruta Baga and other Turnips,  
Sugar Beet and Mangel Wurzel, &c., &c.

## GRASS SEEDS, such as

Large Red Clover  
Medium do. do.  
Timothy,  
Red Top,  
Orchard Grass,  
White Clover,  
Lucerne or French Clover,

## GARDEN SEEDS

Of every variety and in all sized packages, and in boxes suitable for retailing by country merchants. The attention of market gardeners is particularly called to our assortment. Our seeds are with three or four exceptions, of the growth of 1845.

A liberal discount to merchants and seedsmen.

Feb. 1

**E. COMSTOCK**

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ADVERTISEMENTS inserted in the Cultivator, at \$1.00 per 100 words for each insertion.

## GEDDES' HARROW.

ARRANGEMENTS have been made for a constant supply of these useful and superior Harrows, so that we can hereafter receive orders for them at the same prices they are sold for by the manufacturer. They will be well made, both as to durability and finish, and are considered a very superior article. The State Ag. Society awarded a silver medal for the invention. For an engraving, and full description, from the pen of Mr. Geddes, see Cultivator, 1844, p. 16. A sample may be seen any time at our Ag. Warehouse, 23 Dean-st. Albany, where a full supply will also soon be received. E. COMSTOCK & Co.

## FARM FOR SALE.

THE subscriber offers for sale the farm upon which he now resides, situate in the village of Auburn, in the county of Cayuga, and containing 100½ acres.

This farm lies upon the south side of Genesee-st., (Auburn,) and is well known as having been the residence of Hon. Nathaniel Garro, deceased, for many years.

The buildings, fences, and other erections thereon, are ample, and in good repair. The soil will vie with that of any other in western New-York, for fertility, variety, and earliness of vegetation. Great attention has been paid to the selection and cultivation of choice fruits, and there is now upon the farm in full bearing, the choicest varieties of apples, pears, cherries, peaches, plums, grapes, &c., in great abundance.

The farm is well watered by durable springs.

The location is a most desirable one, it being within a few minutes walk of the business part of the village—the churches, post-office, and railroad depot. The Female Seminary is also within a few rods of the dwelling house.

A credit will be given, if desired, for a large portion of the purchase money for a term of years, upon payment of interest annually. Possession given in the spring if required. Enquiries may be made of the subscriber upon the premises, of LUTHER TUCKER, Esq., Editor Cultivator, Albany, or of DAVID WRIGHT, Esq., Auburn.

Auburn, Feb. 1, 1846.—4f [2]

JOHN REMER.

## GREAT ASSORTMENT OF PLOWS.

THE proprietors of the Albany Agricultural Warehouse are now offering to the farmers of this and other states, what they consider the best assortment of Plows ever submitted to the inspection of the public in one collection. That our customers may have an opportunity of judging for themselves we will enumerate a portion of them as follows, with prices annexed.

## WORCESTER PLOWS, made by Ruggles, Nourse &amp; Mason

DESCRIPTION.	Number.	Plain.	Wheel or Cutter.	W. & Cutter
Two horse light plow, ...	Eagle No. 1.	\$8.00	\$9.50	\$11.00
" " " break up " ...	" " 2.	8.50	10.00	11.50
" " " " " ...	" " coult., ..	10.00	11.50	13.00
" " " " " ...	Sward C, .....	9.00	10.50	12.00
Three " " " " " ...	" " B, .....	10.00	11.50	13.00
" " " " " ...	" " D, .....	10.50	12.00	13.50
" " " " " ...	Eagle No. 4, ..	10.00	11.50	13.00
" " " " " ...	" " 25, .....	10.50	12.00	13.50

## Small One Horse Plows.

Cotton or rice plow, ...	Six inch, .....	3.50		
" " " " " ...	Seven " .....	4.00		
Furrowing " " " ...	Double Mold, ..	4.00		
Garden " " " ...	A No. 1, .....	3.50		
One horse or Corn, do. ...	A " 2, .....	4.50		
" " " " " ...	A " 3, .....	6.00		
One or two horse Seed do.	No. 1 B, .....	6.50		
" " " " " ...	" 2 B, .....	7.50		
Side-Hill plow, .....	" O, .....	5.00		
" " " " " ...	" A 1, .....	9.00	10.50	12.00
" " " " " ...	" A 2, .....	11.00	12.50	14.00
" " " " " ...	" A 3, .....	13.00	14.50	
Subsoil " " " ...	" O, .....	5.00		
" " " " " ...	" 1, .....	8.50		
" " " " " ...	" 2, .....	13.50		

## CENTRE DRAFT PLOWS, made by D. Prouty &amp; Co., Boston.

SIZE OF PLOW.	Number.	Plain	Cutter.	Cut. & Wheel
Two or three horse Plow, ..	Eagle C, .....	\$9.50	\$9.50	\$11.00
Three or four " " " ...	" B, .....	9.50	10.50	12.00
Two " " " " " ...	No. 22, .....	7.50	8.50	10.00
Two " " " " " ...	" 23, .....	8.00	9.00	10.50
Two or three " " " ...	" 24, .....	8.50	9.50	11.00
Three or four " " " ...	" 26, .....	10.00	11.00	12.50
Self-Sharpening.				
One horse plow, .....	No. 1, .....	5.50		
One or two horse plows, ..	" 2½, .....	6.50		
Two or three " " " ...	" P V, .....	8.50	9.50	11.00
" " " " " ...	" 5½, .....	9.50	10.50	12.00
Four " " " " " ...	" 6, .....	10.00	11.00	12.50
Side-Hill.				
Two horse plow, .....	No. 1, .....	9.00	10.00	11.50
Two or three horse plow, ..	" 2, .....	10.00	11.00	12.50
Three or four " " " ...	" 3, .....	11.00	12.00	13.50

SUBSOIL PLOWS. No. 1, \$8.00—No. 2, \$10.00—No. 3, \$12.00.

Many other sizes of these plows can be furnished if wanted

## BRAINARD, COMSTOCK, &amp; Co.'s PLOWS.

"Diamond," No. 5. Plain, \$8.00—Clevice, \$9.00—Wheel or Coulter, \$10.50—Wheel and Coulter, \$12.00.

"Diamond," No. 4. Plain, \$8.00—Clevice, \$8.00—Wheel or Coulter, \$10.50—Wheel and Coulter, \$12.00.

"Telegraph," for stubble or crossing. Plain, \$7.00—Clevice, \$8.00—Wheel or Coulter, \$9.50—Wheel and Coulter, \$11.00.

Burrall's shell wheel plows, and Barnaby & Moore's side-hill and level land plows will also be kept on hand.

N. B. One extra point with each plow.

Feb. 1. E. COMSTOCK & Co., 23 Dean-st.

## HUSSEY'S REAPING MACHINES.

WILL be delivered in Baltimore, Md., and Auburn, N. Y., at 100 dollars. They will be made of the best materials, and will embrace all the late improvements. The public prints abound with its recommendations—all of which the reaper is warranted by the subscriber to fulfil.

Hussey's Corn and Cob Crusher, lately improved, is warranted by the subscriber to excel on thorough trial, any in use. Price from \$25 to \$35 dollars. In ordering the above machines, please address the subscriber in Baltimore.

Baltimore, Dec. 1—4t\*

## GUANO.

RECENTLY received direct from Ichaboe, per Shakespeare. The various experiments made from this cargo has proved its quality equal, if not superior to any other Guano. Great care has been taken to put it in tight casks, that it may be kept any time without losing the ammonia. For sale in lots to suit purchasers, by

EDWD. K. COLLINS & Co.,  
56 South-street, New-York.

Dec. 1.—4f